Guide to Watershed Planning and Management

Addendum No. 1

Additional Information to Assist in Developing Watershed Management Plans under Chapter 90.82 RCW

December 2001

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Prepared for:

Association of Washington Cities
Washington State Association of Counties
Washington State Water Resources Association
Washington Association of Sewer and Water Districts
Washington Public Utility District Association

In Association with:

Washington Department of Ecology

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Additional copies of this Addendum, as well as the original manual (January 11, 1999) may be ordered from the Department of Ecology (contact Melissa Gildersleeve, at (360) 407-6548; mgil461@ecy.wa.gov). In addition, the Department of Ecology maintains information regarding watershed planning on the following Web site:

http://www.ecy.wa.gov/watershed/

This addendum to the *Guide to Watershed Management and Planning* was developed under the guidance of a Steering Committee representing five associations of local governments and special districts, and the Department of Ecology. In addition, 14 representatives of several additional agencies, organizations and interest groups related to watershed planning were invited to serve on an Advisory Committee that contributed to developing the addendum. Committee members and additional contributors are listed below:

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Acronyms

BMP	Best Management Practice
CIDMP	Comprehensive Irrigation District Management Plan
CWA	Clean Water Act
DOH	Washington State Department of Health
Ecology	Washington State Department of Ecology
EIS	Environmental Impact Statement
ENSO	El Nino/Southern Oscillation
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESHB	Engrossed Substitute House Bill
FCAAP	Flood Control Assistance Account Program
FERC	Federal Energy Regulatory Commission
FY	Fiscal Year
GMA	Growth Management Act
GSRO	Governor's Salmon Recovery Office
HB	House Bill
IFIM	Instream Flow Incremental Method
JNRC	Joint Natural Resources Cabinet
MOA	Memorandum of Agreement
NPDES	National Pollutant Discharge Elimination System
PDO	Pacific Decadal Oscillation
P-EIS	Programmatic Environmental Impact Statement
RCW	Revised Code of Washington
SEPA	State Environmental Policy Act
SMA	Shoreline Management Act
SRFB	Salmon Recovery Funding Board
TMDL	Total Maximum Daily Load
UCSRB	Upper Columbia Salmon Recovery Board
WAC	Washington Administrative Code
WDFW	Washington State Department of Fish and Wildlife
WFI	Water Facilities Inventory
WMA	Watershed Management Act
WRATS	Water Rights Application Tracking System
WRIA	Water Resource Inventory Area
WSDOT	Washington State Department of Transportation

Section 1
Introduction and Purpose

The 1998 Legislature enacted into law Chapter 90.82 RCW, also known as the Watershed Management Act (WMA). WMA provides a framework to collaboratively solve water related issues at the watershed scale. It is designed to allow citizens and local governments to join together with tribes and State agencies to develop watershed management plans. This framework is based on geographic areas known as Water Resource Inventory Areas (WRIAs). Within the WRIAs, locally established Planning Units are authorized to develop strategies for satisfying water supply needs, improving water quality, protecting and enhancing fish and wildlife habitat, and recommending instream flow levels. Since enactment of the WMA, 30 watershed planning units have formed, to develop watershed plans for 39 of the State's 62 WRIAs[1].

Shortly after the 1998 Legislative Session, a group of five local government and special district associations initiated a process to develop a manual on watershed planning. A Steering Committee was formed to guide the process. Members of the Steering Committee included representatives of the following organizations:

- Washington State Association of Counties
- Association of Washington Cities
- Washington Public Utility District (PUD) Association
- Washington Association of Sewer and Water Districts
- Washington State Water Resources Association
- Washington State Department of Ecology (Ecology)

Ecology provided funding for the manual, and several additional State agencies participated in its development. The manual was published by Ecology as the *Guide to Watershed Management and Planning* (draft) in January 1999[2].

[1] Some of the Planning Units cover more than one WRIA.
[2] Subsequent reprints of the document have retained the "draft" designation. In effect, however, the draft document has been utilized as a final document by Ecology, the five associations, and Planning Units throughout the State. This Addendum represents the first effort to add to or revise the 1999 document.

Several developments since 1999 have provided new guidelines, information or experience that can assist local Planning Units in developing watershed plans. These include:

- Amendments to Chapter 90.82 Revised Code of Washington (RCW) during the 2001 Legislative Session (House Bill (HB) 1832);
- Experiences of the many Planning Units throughout the state that have made progress on organization, assessment, and plan development, since publication of the 1999 manual; and,
- Developments on related laws and programs such as efforts oriented at salmon recovery throughout the state.

These developments highlight the need for further guidance to extend the content of the *Guide to Watershed Planning and Management*. Based on this need, Ecology and the Steering Committee oversaw development of this Addendum. The purpose of the Addendum is to update information in the original manual, and to bring new information and experience to the attention of local Planning Units engaged in watershed planning under WMA.

In developing this Addendum, the Steering Committee invited representatives of several agencies, organizations and interest groups to participate as an Advisory Committee. Members of the Advisory Committee are listed at the front of this document.

Following this Introduction, the Addendum document includes the following sections:

Section 2 Recent Developments Relevant to Watershed Planning
Section 3 Coordination with Related Planning Activities
Section 4 Strategies for Managing Water Quantity
Section 5 Description of Ongoing Watershed Planning Efforts
Section 6 Additional Topics of Interest to Planning Units

Section 2
Recent Developments Relevant to Watershed Planning

Since the Watershed Management Act (WMA) was passed in 1998, there have been a number of developments in the State of Washington that are either directly related to the watershed planning process, or indirectly related through various aspects of water law and water resource management. While not every new development is covered here, certain items that may be of particular interest to watershed Planning Units include:

- Passage of Engrossed Substitute House Bill (ESHB) 1832 during the 2001 Legislative Session, modifying Chapter 90.82 RCW, and adding or modifying additional statutes involving Washington water law.
- Passage of House Bill 1865, during the 2001 Legislative Session, creating a specific change with regard to the "initiating governments" for watershed planning in the Columbia Basin Project area.
- Senate Bill 5910 in the 2001 Legislative Session created additional exemptions from the relinquishment provision in State water law.
- Establishment of Water Conservancy Boards to assist Department of Ecology (Ecology) in processing water rights applications at the county or Water Resource Inventory Area (WRIA) level (initial legislation was passed in 1997, with subsequent experience in actual formation of the Boards, and additional changes to the law in 2001).
- The 2001 legislative session also saw the passage of Substitute Senate Bill 5637, the Salmon and Watershed Health Monitoring Act.
- The 2001 Legislature authorized funding for development of salmon recovery plans, at the local or regional level. The plans can be coordinated by a watershed planning unit, or a lead entity under the Salmon Recovery Act.
- In 2000, the Legislature created a Storage Task Force to examine the role of increased water storage in providing water supply for fish, population growth, and economic development. In addition, Senate Bill 5919, passed by the Legislature in 2001, provides for the assessment of potential site locations for water storage projects.
- Ecology is in the process of developing a programmatic Environmental Impact Statement (EIS) for watershed plans; and a second programmatic EIS for setting new instream flows by rule.

- Ecology is in the process of developing a new rule with regard to measuring of water use.
- There have been various developments with regard to water-quality management in the State.
- The State Stormwater Advisory Committee has issued an interim report with recommendations.
- Ecology has developed a new manual for stormwater management in western Washington, and plans to develop an additional manual for eastern Washington.
- Ecology adopted a new rule on Shoreline Management, in 2001. The rule was subsequently invalidated, and final resolution of this issue is pending at this time.
- Ecology is forming a panel on watershed plan implementation, to include development of a funding strategy.

This chapter briefly summarizes each of these developments, as an aid to watershed Planning Units dealing with related issues of water-resource management.

2.1 Recent Legislative Activity Affecting Watershed Planning

This section summarizes recent changes or additions to Washington Water Law, with a primary focus on the 2001 Legislative Session.

2.1.1 ESHB 1832

This bill, passed in the 2001 Legislative Session, creates a set of comprehensive changes to the state water code as part of Governor Gary Locke's multi-year plan for making changes to Washington's water laws. Engrossed Substitute House Bill (ESHB) 1832 includes several categories of changes: flexible planning, water-right processing, water conservancy boards, family farms, conservation incentives, and trust water rights. The conservancy board changes are discussed in Section 2.1.4.

Watershed Planning

Watershed Planning groups are now eligible for new funding to finance more planning at Phase II (the Assessment Phase). A planning unit can apply for an additional $300,000 per WRIA: $100,000 for each of three elements: instream flows, water quality, and detailed assessments of multi-purpose water storage opportunities or projects. Priority in funding will be given to proposals for setting or amending instream flows.

The initiating governments for each Planning Unit now have until the end of 2001, or within one year of initiating phase one of the planning process, whichever occurs later, to decide whether to establish or amend instream flows. If they do not elect to establish or amend instream flows, Ecology

would receive the instream flow funding. In this case, Ecology is authorized to establish instream flows, but not to amend existing instream flows, unless requested to by the initiating governments.

Planning Units may also request different levels of funding for Phases II and III (the assessment phase and planning phase) than specified in the law, as long as the total amount awarded does not exceed the maximum amount eligible for funding. Watershed plans must be submitted for county approval by four years after the date when funds (beyond initial funding) are drawn upon by the planning unit.

Water Rights

Two Lines for Water-Rights Applications: The bill differentiates between applications for new rights, and those for changing or transferring existing water rights. This should speed up the application process by allowing simple change or transfer applications to be reviewed before more complex applications for new water rights. Previously, the two types of applications were considered together; Ecology was required to consider future water rights not yet granted or denied, when it considered applications for modifying existing rights. This bill does not protect new applications from being affected by changes or transfers of existing water rights. And it prohibits Ecology from requiring an applicant for a change or transfer to give up a portion of their water right as a condition of applying. An application for a transfer or change of an existing water right may be set aside for insufficient information, in which case it does not lose its priority date; if the information is supplied by the applicant within 60 days, the application must then be processed.

Family Farm Water Rights: The bill allows family farm water permits that are located in urban growth areas or within city limits to be converted into other uses. The Family Farm Act, passed by public initiative in 1977, gave priority to family farms (farms smaller than 2,000 acres) for irrigation permits on privately owned agricultural land. Land had to stay qualified as a family farm, according to the definition existing when the permit was issued, which was interpreted as prohibiting water rights from being modified or used for other purposes besides agricultural irrigation. This bill now also allows family farms anywhere in the state to temporarily lease their water to other purposes, and surplus water resulting from conservation can be permanently converted to other purposes. Finally, the maximum size that qualifies as a family farm is increased from 2,000 acres to 6,000 acres.

Trust Water Rights: The bill also encourages donations of water for the improvement of instream flows and for other beneficial uses, by revising the trust water rights program. The holder of a water right can donate that right to Ecology with the express condition that it be used to improve instream flows. Ecology is no longer required to examine these donated water rights

for potential impairments of existing water rights before that trust water right is exercised. Trust water rights within an area with an approved watershed plan must be consistent with the plan if it calls for such acquisitions. No advance public notice or public review of the donation is required, and donors are allowed to specify the terms of their donation. Donated water rights are not subject to "use it or lose it" relinquishment rules: donors don't lose their water rights, and their donations are federally tax-deductible.

Conservation and Re-Use

Tax incentives are provided for conservation and re-use. For water conservation, utilities can now deduct 75 percent of the money they invest in conservation measures. For water re-use, 75 percent of the income from selling reclaimed water will not be taxed. This bill also requires that funds equal to one-third of the tax savings under this provision be appropriated to the State's water rights trust account.

The Washington State Legislature's Bill Information Web page contains more details. This web page can be found at:

www.leg.wa.gov/wsladm/bills.cfm

2.1.2 Watershed Planning and the Columbia Basin Project

House Bill 1865, signed into law on May 9, 2001, created a specific change related to the Columbia Basin Irrigation Project. The bill allows utilities in the project area to serve as initiating governments even though their water was not originally diverted within a Columbia Basin Project WRIA.

Before this bill, watershed planning had to be initiated with the agreement of three local groups: (1) all counties covered by a WRIA; (2) the largest city within the WRIA; and, (3) the water supply utility obtaining the largest quantity of water from the WRIA. However, in some WRIAs, utilities draw their water from irrigation districts within the federal Columbia Basin Project, and so their water does not come from the WRIA in which they are using that water, as required under previous law.

This bill, effective on July 22, 2001, expressly allows the water supply utility that withdraws the largest amount of water from Columbia Basin Project irrigation districts for use in a Columbia Basin Project WRIA, to qualify as an initiating government for watershed planning in that WRIA, so those irrigation districts can participate as initiating governments in locally based watershed planning. This change in Chapter 90.82.060 RCW is reflected in Appendix A.

2.1.3 Relinquishment

Senate Bill 5910 created additional exemptions from the "Use it or Lose it" rule of water rights. Previously, if a person abandoned or didn't use a water right for five consecutive years, that water right reverted back to the state. There is a "sufficient cause" exception to this rule, so that if a person had sufficient cause to not use the right, they could avoid relinquishment. Before this bill, sufficient cause was more narrowly defined and included an exemption for water rights used for municipal purposes.

The bill expands the definition of sufficient cause to include five new circumstances:

- A temporarily reduced need for irrigation due to weather conditions, including precipitation and temperature that warrant reduction in water use. This qualifies as long as diversion and delivery facilities are maintained for use of the full amount of the water right.
- Reduced water use resulting from a contract under which an electricity supplier buys back electricity from a water right holder that is needed for diversion or withdrawal of water for irrigation.
- Reduced water use because of conservation of water under the Yakima River Basin Water Enhancement Program, as long as the conserved water is then reallocated as required by the project.
- Reliance upon temporary return flows instead of diversion or withdrawal of water from the primary supply source, as long as the return flows are measured by a method accepted by Ecology.
- The reduced use of irrigation water because of crop rotation or temporary changes in crops; unused water would not be relinquished if the remaining portion of the water continued to be beneficially used.

Senate Bill 5910 became effective on May 11, 2001. The new law does not completely eliminate relinquishment, but expands the criteria for exceptions to that rule.

2.1.4 Conservancy Boards

Water conservancy boards (see RCW 90.80) were begun in 1997 as a partnership between Ecology and local governments to speed up the review process for applications for transfers and changes to existing water rights. Conservancy boards are established by county governments when they receive a petition for a board. Many different types of interested parties can petition for formation of a board, including a utility district, a group of water rights holders, or a city. The county legislative authority appoints "commissioners," who go through training on state water law and hydrology. Conservancy board commissioners who have ownership interests in a water right that has an application before the board cannot participate in the

review of that application. The board holds public hearings after receiving transfer applications, and can conditionally approve or deny them. Ecology then has 45 days to respond to a proposed board decision before it becomes final.

Conservancy boards have undergone several changes since they were first introduced in Substitute House Bill 1272. In July 1999, administrative rules (WAC 173-153) were proposed for the boards, and adopted in November 2000. In December 2000, several environmental groups brought suit against Ecology claiming that the boards had more authority than the law allowed; the judge found that Ecology's rule on conservancy boards went beyond the scope of the 1997 law.

This decision resulted in statutory changes by the 2001 Legislature. ESHB 1832 allows conservancy boards to serve multiple counties or WRIAs, and allows boards to process the same types of modifications of water rights as may be processed by Ecology. Other changes include the removal of federal Indian reservations and tribal lands held in trust by the federal government from conservancy boards' jurisdiction. Boards' operations are changed in several respects: conclusions are now called "records of decisions;" an applicant may choose whether to apply to a conservancy board or to Ecology, and may choose to move an application from Ecology to a board. The bill also allows counties to appoint two additional commissioners to their boards for a total of five, at least one of whom must be a water rights holder. Certain liabilities of board members are waived, conflict-of-interest requirements for board members are now clarified, and Ecology may request that a county dissolve a board for repeated statutory violations or a demonstrated inability to perform its functions. Boards are now expressly subject to the state's public disclosure laws.

Water conservancy boards are specifically directed to notify watershed planning units of applications for water rights changes, so planning units can provide comments. However, chapter 90.82 RCW does not require planning units to review or comment on conservancy board decisions.

More information on conservancy boards can be found on the web at:
http://www.ecy.wa.gov/programs/wr/conservancy_boards/cb-home.html

2.1.5 Watershed Monitoring

The 2001 legislative session also saw the passage of Substitute Senate Bill 5637, the Salmon and Watershed Health Monitoring Act. While there are already many agencies and citizen organizations doing monitoring of many watershed planning and salmon recovery activities, there is little coordination between them. This bill calls for the development of a statewide monitoring strategy and action plan by December 2002, and is intended to provide accountability, encourage refocusing watershed planning activities

toward salmon recovery, greater coordination of existing monitoring activities, and sharing of information between organizations carrying out watershed planning and salmon recovery efforts.

The bill establishes a monitoring oversight committee co-chaired by the director of the Salmon Recovery Office and the chair of the Salmon Recovery Funding Board, and made up of representatives from the Salmon Recovery Office, Ecology, the Puget Sound Action Team, among others. The committee will also invite local government entities to participate. The monitoring oversight committee will report quarterly to a four-member steering committee composed of two Senate members appointed by the President of the Senate, and two House members appointed by the Co-Speakers.

Specific monitoring objectives are listed in the bill, including standardized protocols, sharing of data, and stable funding. By March 1, 2002, the co-chairs will provide an interim report to the Governor, and by December 2002, the committee will provide a monitoring strategy and action plan with the goal of achieving a coordinated monitoring program by June 2007. WRIA Planning Units are directed to implement the monitoring recommendations developed by the committee.

2.1.6 Storage

Senate Bill 5919, signed by the Governor on July 13, 2001, provides for the assessment of potential site locations for water storage projects.

In 2000, the Legislature created a Storage Task Force to examine the role of increased water storage in providing water supply for fish, population growth, and economic development. One solution discussed was to store water when there is excess runoff and stream flow, and release that extra water during low-flow periods. The Task Force recommended that the State should help local watershed planning groups in assessing potential site locations for water storage projects.

The assessments will include estimates of present water, available water, water rights claims, water actually being used, future water needs, water available for further appropriation, and areas where aquifers recharge surface water and where aquifers are themselves recharged by surface water.

The bill lists strategies for increasing water supplies, including conservation, re-use, reclaimed water rights, voluntary transfers, aquifer recharge or recovery, additional allocations, or additional storage. The objectives of these strategies are to supply enough water to satisfy minimum instream flow requirements for fish, and to ensure that enough water exists for future agricultural, energy, and growth needs.

The assessments may also include identification of potential sites for future water storage projects, including large or small projects, and alternatives such as off-channel, on-channel, underground, or enlarged storage.

Further information on the findings and recommendations of the Water Storage Task Force is included below.

2.1.7 Salmon Recovery Planning Grant Program

The 2001 Legislature, through budget proviso, allocated $1,000,000 of pass-through funding to the Washington Department of Fish and Wildlife (WDFW) for the development of salmon recovery plans at the local or regional scale. To effectively manage these funds, the WDFW has established a new program called Salmon Recovery Planning Grant Program. The purposes of the Program are to create a model for local and regional salmon recovery plans, to develop eligibility and evaluation criteria for distributing the funds and then to administer grant contracts.

A salmon recovery plan, for the purposes of the Program, is a document that defines the goals necessary to recover one or more salmonid populations, describes actions and implementation steps across all "Hs" (hatchery, harvest, hydroelectric, and habitat) necessary to achieve those goals, and details the commitments to implementing, monitoring, and evaluating those actions.

The WDWF will consider applicants able to coordinate comprehensive salmon recovery planning efforts at the local or regional scale. The geographic scope for local or regional salmon recovery planning should mirror the state-adopted salmon recovery regions (Snake River, Northeast Washington, Upper Columbia Basin, Middle Columbia Basin, Lower Columbia River, Puget Sound, and the Washington Coast) or encompass a local multi-WRIA geography that contributes significantly to the recovery of an entire Evolutionarily Significant Unit, Distinct Population Segment, or regional population.

A salmon recovery planning entity is a lead entity, watershed planning unit, or a combination of both that has formally agreed to accept the responsibility for coordinating the development of comprehensive local and/or regional salmon recovery plans.

For more information, please contact Phil Trask, Salmon Recovery Planning Grant Program Manager at (360) 902-2805.

2.2 Water Storage Task Force Activity

During the year 2000 Legislative Session, the Legislature recognized the potential for additional water storage as a solution to the water supply needs of the State.

Through a budget proviso, the Legislature directed Ecology to convene a task force on water storage. The purpose of the task force was defined as:

> "…to examine the role of increased water storage in providing water supplies to meet the needs of fish, population growth, and economic development, and to enhance the protection of people's lives and their property and the protection of aquatic habitat through flood control facilities." *(Chapter 1, Laws of 2000, Engrossed House Bill 2487)*

These goals appear similar to the objectives for water quantity management expressed in Chapter 90.82.070 RCW. Therefore, the results from this process are summarized here.

The Water Storage Task Force was convened and held five meetings during year 2000. It issued a *Report to the Legislature*, dated February 2001[1]. The report identified four categories of water storage, both above-ground and underground. These four categories are summarized in Table 2-1, together with potential benefits and drawbacks identified by the Task Force.

The report inventories storage projects in Washington, including nine projects constructed in the last 15 years. It discusses State, federal and tribal policies related to storage, describes planning considerations, and outlines permits needed for storage projects. It also covers environmental considerations, operational considerations, and financing of water storage. It also notes that there are alternatives to water storage, such as water conservation, reclaimed water, and preservation of "natural storage" related to ground water recharge and storm water runoff. Appendices are provided with additional information related to the Task Force's activities and water storage.

The Task Force presented a set of conclusions and recommendations. These are reproduced in their entirety in the boxes on pages 10 and 12.

[1] The full text of this 130-page report is available as Ecology publication No. 01-11-002, and can be obtained by contacting Ecology or through Ecology's Web site at:
http://www.ecy.wa.gov/programs/wr/wstf/wstfhome.html

Table 2-1
Comparison of Different Methods of Storage

Benefits	*Drawbacks*
New On-Channel Dams	
• Large reservoirs can be filled by direct runoff from the drainage basin using the stream as the conveyance system. • Can provide substantial flood control benefit. • Usually less expensive construction, operations and maintenance costs than for large off-channel reservoirs.	• Can require relocation of people and infrastructure. • Can drown significant riparian habitat. • Barrier to fish passage. • Sediment load can eventually fill in reservoir. • Requires large spillways and outlet works.
New Off-Channel Dams	
• Generally do not represent a barrier to fish passage. • Can be sited in a non-environmentally sensitive area, and may not require extensive mitigation. • Less water quality harm on main river than for on-channel dams • Much smaller spillways and outlet works needed.	• Require extensive conveyance infrastructure (canals, pipes) to get water into and out of reservoir. • Construction, operations and maintenance costs can be much higher than on-channel reservoirs. • Leakage and seepage may require a liner to be placed in the reservoir.
Raise Existing Dams	
• New environmental effects are relatively fewer and smaller compared to a new dam. • The unit cost for increased water storage is typically much lower than for new dam projects. • Significant storage volume can typically be added for a relatively small increase in dam height.	• Existing development around the reservoir has to be relocated or purchased. • Potential risk to downstream lives and property increased, may require extensive dam safety upgrading. • Wetlands and riparian habitats created by the existing reservoir may be displaced.
Aquifer Storage and Recovery	
• Minimal construction is required. • Reduced land surface effects. • Little or no loss of environmental habitat. • No evaporation losses. • Better protection from surface contaminants. • Potential improvements in water quality, streamflow and aquifer levels.	• Limited technical, management and regulatory experience with this storage method. • Possible contamination of existing groundwater by introduced water. • Ownership and/or management of lands over the aquifer may be required similar to Wellhead Protection Areas. • Favorable geology required to limit aquifer leakage.

Source: Water Storage Task Force, 2001, Report to the Legislature.

Conclusions of the Water Storage Task Force

Importance of Water

1. Water is a vital resource for Washington State. Dependable water supplies of sufficient quantity and quality are essential to the economic and environmental health of the state.

Role of Storage

2. Storage can be an important and useful water supply and environmental management tool. Water storage can:

   - ❑ Address the needs of all water users.
   - ❑ Provide supplies for economic development and population growth.
   - ❑ Be used to restore fisheries and help preserve the biological integrity of our watersheds.
   - ❑ Enhance recreational activities and provide protection from destructive floods.

3. Members of the Water Storage Task Force have differing opinions on the relative importance of storage in meeting future water supply needs:

   - ❑ Some members believe it is the only tool that will allow the state to meet its future water supply needs in much of the state. These members note that storage is the only method that will produce large enough quantities to meet the identified needs. They also note that storage to produce new supplies will avoid the need to fight over water rights and ownership of existing supplies.
   - ❑ Other members believe it will be an important tool in some basins and not in others, and must be used in conjunction with other water supply and demand management options (e.g., conservation, water transfers, and water reuse). These members note that storage options can be very expensive and controversial, and that future needs may be met by water conservation, re-use and marketing of existing supplies in some areas of the state.

Planning For Storage

4. There are many areas in Washington that have abundant, and some times excessive, water during the wet season that could benefit from further evaluation of storage as a tool to meet current and future water needs.

5. The watershed planning process is a significant and timely opportunity for evaluating water storage as a management strategy to meet water needs.

6. Storage projects which are part of an overall plan or agreement among the federal, state, local and tribal governments regarding water management in a basin, and storage projects that serve multiple purposes are most likely to be successfully sited and funded.

7. Different uses of storage may compete with each other by requiring that water be stored or released at different times of year. Optimizing use of storage for one purpose (releasing water from a reservoir to make room for flood control) can hamper the ability to secure other storage purposes (saving water in a reservoir for later production of hydropower).

8. Planning for new storage projects should consider how to balance the full range of potential uses for the stored water.

Evaluating Storage Projects

9. Because of the complex economic, technical and environmental issues surrounding storage projects, the feasibility of each project must be determined on a case-by-case basis.

10. The potential benefits and impacts of any particular storage project can only be determined by assessment of that particular project and its watershed.

Environmental Considerations

11. If a storage project is to be designed to benefit fish, not just to minimize harm to fish, the design and operation of the project must take into account the variations in timing and flow that support important habitat and crucial ecological functions.

12. Aquifer storage and recovery (ASR) projects, when properly sited and operated, could result in less harm than surface alternatives.

Funding

13. Funding is essential for developing storage projects. Construction costs can vary significantly, with recent project costs ranging from around $100 to more than $10,000 per acre-foot of stored water. New, large storage projects can cost millions of dollars. Planning, design and permitting can also be a significant portion of the total costs. While some public funding is available for select storage uses, the existing public funding programs are severely over-subscribed and would not cover the full cost of a storage project.

14. Funding will need to come from a variety of sources, including a new source of public funds.

Land Use

15. On-site and local practices to manage storm water (e.g., reducing impervious area and providing infiltration basins) will reduce flooding, improve water quality and benefit the water quantity of a basin by preserving the "natural storage" capacity of the land. Storm water that is recharged to the ground will help sustain aquifers and dependent streams during low-flow periods.

Source: Water Storage Task Force, 2001, Report to the Legislature.

Recommendations of the Water Storage Task Force

Water supply as a state priority

1. Providing adequate water at the right time for diverse needs of the state including people, fish, and agriculture should be a high priority.

Role of the State

2. State agency responsibilities for water storage should be coordinated by Ecology. This would include: providing technical assistance; ensuring effective participation by state agencies; assisting in bringing state, local, tribal, and federal agencies together; and encouraging timely, regulatory review by state agencies. Ecology's coordinating role applies to major projects and planning, not individual projects such as the approval of domestic water storage tanks or other items typically reviewed by Department of Health in water system plans.

Permits and Laws

3. Without compromising environmental review and public involvement, the state should identify and implement efficiencies, to streamline the permitting process of siting and constructing additional water storage projects, reducing the amount of time and overall cost of these projects.
4. The legislature should evaluate existing state laws related to storage to determine if there are gaps or conflicts that need to be addressed.

Planning for Storage

5. Planning for new water storage projects should consider the full range of storage alternatives, including off-channel storage, underground storage, the enlargement or enhancement of existing storage, and on-channel storage; and of both large and small scale (e.g., small stormwater facilities) options.
6. Planning and design for storage should be considered in the context of how water works within an entire basin or watershed. This includes consideration of the natural variability of stream flow and its interaction with the floodplains and associated ground waters, as well as scientific analysis of the water needs of all life stages of the species of interest present in the basin. Planning for storage should also address how storage will integrate with the water supply and delivery system(s) within an entire basin.
7. Water storage infrastructure needs should be inventoried and assessed through watershed planning processes. The inventory should include all public and private water systems. The inventory should ensure that small drinking water systems and fire safety needs are addressed.
8. Consistent with the Watershed Management Act, and other laws, the state should help local watershed planning groups, local governments, utilities, and other stakeholder groups define:
   - ❑ The current and future water supply and demand in their watersheds, including in-stream and off-stream needs;
   - ❑ The type of storage projects for that watershed; and,
   - ❑ Potential storage site locations.

9. The Watershed Management Act manual should be updated to add a section on storage. Topics to include are:
   - ❑ Different types of storage;
   - ❑ Case studies of successful and unsuccessful projects, including aquifer storage and recovery;
   - ❑ Recommended procedures for evaluating storage projects; and,
   - ❑ Recent advances in the science of how a river system supports the diversity of aquatic species, including the latest information on addressing the types of flows that are necessary to provide for key ecological functions of the river system.
10. Groups planning for water storage should be encouraged to include climate fluctuations as it impacts the availability of water as part of the planning processes.
11. The state Dam Safety Office should advise local governments of the status of dams within their jurisdiction so informed local land use decisions can be made.
12. Ecology should work with federal agencies to develop clearer policies and procedures for use of federal lands for water storage projects.

Funding

13. The state needs to pursue creative methods to facilitate the financing of water storage projects, including consideration of: (1) direct appropriation of federal funds; (2) use of salmon recovery funds (federal and state) to help pay for the fish flows and fish features of storage projects; (3) use of state bonding capacity. In addition, some members of the task force suggested consideration of the use of power revenue resulting from changes in flow augmentation programs on the Columbia River mainstream.
14. The legislature should consider establishing funding sources for the design and construction of water storage projects, in consideration of the following:
    - ❑ Priority for funding should be provided to projects identified in adopted watershed plans or to projects that are part of an approved HCP or other intergovernmental agreement.
    - ❑ The funding should promote a cost-share contribution from those who would directly benefit from the storage.
    - ❑ The funding should, at a minimum, cover the costs of storage benefits that would accrue to fish recovery and enhancement and to other general public purposes.
    - ❑ Prioritize projects that address multiple needs for water supply and/or flood control.
    - ❑ The funding should emphasize small or medium-scaled projects using off-channel or underground storage, or projects that enlarge existing storage sites.
15. When considering infrastructure needs, the legislature should consider water storage projects.

Types Of Storage

16. State and local governments should improve utilization of natural aquifer recharge where practical, by prioritizing measures that control increased runoff.

Role of Storage

17. All task force members agree that properly designed and sited storage is one of several tools available to meet the water supply needs of the state. However, the members have differing recommendations on whether or not storage should be considered in conjunction with other water management tools.

    - Some members recommend that water storage projects be pursued as the primary water management tool in most of the state. These members say that storage is the only method that will generate the quantities required to meet the water supply needs.
    - Other members recommend that water storage be developed in conjunction with water conservation, water reuse, water transfers and water acquisition. These members say that these other water management techniques can extend the life of existing storage facilities and reduce the size and cost of new storage facilities.

Fish Passage

18. Fish passage should be addressed consistent with current laws when developing new water storage dams or when making major modifications to existing water storage dams. When assessing basin needs for storage infrastructure, watershed planning groups should evaluate the need for providing fish passage through existing or future storage projects, including evaluating the water supply needed to operate the fish passage facilities and funding to build the passage structures.

19. All task force members agree that major modifications to existing storage dams will involve an evaluation of the needs and opportunities to provide for fish passage. However, members have differing recommendations on whether passage should be restored on all existing storage dams when they undergo major modifications.

    - Some members recommend that restoring fish passage to existing dams should be pursued where it is economically feasible to build the passage, where the fish benefits will warrant this additional investment for a modification project, and where there are available water supplies to operate the passage facilities.
    - Other members recommend that fish passage on existing dams should, in most cases, be restored as a basic requirement for major modification projects.

Source: Water Storage Task Force, 2001, Report to the Legislature.

2.3 Process to Develop SEPA Template/EIS for Watershed Plans

Watershed plans developed under the Watershed Planning Act are required to comply with the State Environmental Policy Act (SEPA). Section 11.3 of the *Guide to Watershed Planning and Management* discusses the requirements to conduct SEPA review for watershed plans. This section states that performing SEPA analysis concurrent with plan development will:

- Save time and money;
- Result in a better product;
- Contribute to public acceptance; and,
- Save time and money at the point of implementing projects in the plan.

Recognizing that all the Planning Units will need to complete a similar analysis of water management strategies, Ecology sought and received funding to develop a generic SEPA document that would characterize the impacts of these strategies.

This document will identify and evaluate watershed plan elements (water quantity, water conservation, storage, reuse, water transfer, water quality, habitat items, etc.) and possible management strategies, as well as provide a general analysis of the probable significant environmental impacts associated with those elements and strategies. It will provide Planning Units with a tool designed to support informed decision-making regarding the trade-off posed by different approaches to plan implementation. It can also help the planning unit understand how a plan will create a framework for future on-the-ground activities. SEPA analysis can help bring into focus the discussions and decisions that should occur during the planning phase in a watershed.

This statewide SEPA document is intended to provide the foundation for local and state SEPA compliance for watershed plans and for local and state implementation obligations within such plans. The document can be adopted by each individual Planning Unit; however, most Planning Units will need to supplement this document with local information from their watershed. While this product will not eliminate the local obligation to complete SEPA review, it will significantly reduce the amount of work needed to meet SEPA requirements. It also will allow for faster and simpler SEPA compliance, which should assist in timely adoption and implementation of plans.

2.4 Process to Develop Programmatic EIS for Instream Flows

Recommendations for establishing or amending instream flows are one of the new funded optional elements under HB 1832. Instream flows are scientifically based surface water flows set by administrative rule to ensure adequate water remains in a river for people and fish. A Programmatic Environmental Impact Statement (P-

EIS) is being developed as required in HB 1832 to analyze the environmental trade-off of various flow-setting approaches and flow assessment methods.

This proposed P-EIS is intended to assist watershed planning by providing a broad level of information on flow setting that can be used in all watersheds in Washington State. Similar to the generic SEPA document this P-EIS will need to be supplemented with watershed specific information. The P-EIS will present a broad array of flow assessment methods and it will discuss environmental tradeoffs and the potential pros and cons of alternative approaches.

As with the generic SEPA document, local planning groups would be able to save time and money by adopting the P-EIS because it will cover issues common to most watersheds. Environmental issues or impacts that are different or outside the scope of the P-EIS could then be addressed in a supplemental EIS or addendum prepared by the local watershed planning group. This would also allow Ecology to proceed with timely rule development to support planning unit recommendations.

This flow-setting P-EIS could also feed into a watershed planning SEPA Template. As watershed planning and other groups develop flow recommendations for streams over the course of the next few years, they can use the P-EIS and supporting documentation to help them make informed decisions.

Additional information can be found on the web, at:
http://www.ecy.wa.gov/biblio/0111001.html.

2.5 Process to Develop Rule on Measuring Water Use

Measurement of water diversions, withdrawals, and/or usage is an important element in any effective program to manage water resources. This involves installation of gauges, source meters, or other devices at the point the water is diverted or withdrawn, together with periodic collection and storage of measurement data. The WMA indicates that watershed Planning Units must develop "an estimate of the surface and ground water actually being used" in the WRIA for which a watershed plan is developed (Chapter 90.82.070 RCW). Many Planning Units have found that data on water uses is limited in their WRIA or WRIAs.

Chapter 90.03.360 RCW, revised in 1993, addresses measurement of water diversions. Measuring is required for all diversions. Ecology must require measuring as a condition for all new surface water right permits and for existing water rights that meet at least one of the following two criteria:

- Surface water diversions greater than one cubic foot of water per second; or

- Diversions and withdrawals from surface and ground water sources that support fish stocks classified as critical and depressed by the Washington Department of Fish and Wildlife (WDFW).

Pursuant to the statute, Ecology passed a rule in 1969, with minor changes in 1988. The rule, Chapter 508-64 WAC thus predates the updated statute.

As a result of recent litigation over the water measurement law, the Thurston County Superior Court has ordered Ecology to take additional steps with regard to measurement of water uses. Ecology has submitted a Compliance Plan, detailing the following steps:

- Ecology will revise the water measuring rule;
- Ecology will require water measurement by the biggest water users in each of the 16 watersheds where fish stocks have been classified as critical and depressed by WDFW.

The Compliance Plan calls for water users comprising the top 80 percent of total water use in the 16 watersheds to measure their water uses by December 2002. Many of these users, such as public utilities and large agricultural operations, may already be measuring their diversions and withdrawals. The primary difference from the past will be the addition of reporting requirements. The Compliance Plan does not include measurement of water uses from individual household wells (e.g., wells exempt from water rights requirements); nor does it involve charging users for their water use.

Ecology's Compliance Plan timeline is:

- **December 31, 2001** Complete an assessment of water users already required to measure through permit conditions, regulatory orders, court orders, or as a condition or extension of change to a claim, permit, or certificate.
- **December 31, 2001** Complete rulemaking on water measuring rule.
- **March 31, 2002** Issue orders to holders of claims, permits and certificates who are already required to measure so they conform to the revised rule.
- **June 30, 2002** Issue measurement orders to 25 percent of the largest holders of claims, permits and certificates in the 16 critical watersheds.
- **September 30, 2002** Issue orders to an additional 50 percent of the largest holders of claims, permits and certificates in the 16 critical watersheds.
- **December 31, 2002** Issue orders to the remaining largest holders of claims, permits and certificates in the 16 critical watersheds.

Information on the latest status of the proposed rule can be found on the web at:
http://www.ecy.wa.gov/programs/wr/measuring/measuringhome.html

The measurement and reporting requirements associated with the rule may provide additional data on water use that could be obtained by Planning Units for use in developing a watershed plan. However, water uses can be highly variable from year to year, and it may be some time before a multi-year data set can be assembled that fully captures this variability in each WRIA. The information may be available during implementation of watershed plans, in future years. For more information on estimation of water uses, see Section 6.3.

2.6 Developments Involving Water Quality Standards and TMDLs

Recent or ongoing initiatives involving management of water quality include:

- Ecology's proposed revision of the state water quality standards;
- EPAs development of an alternative approach to setting temperature criteria in the three Northwest States (Idaho, Oregon, and Washington); and,
- Ecology's continued implementation of the TMDL program in basins across the state.

These developments are summarized below.

2.6.1 Proposed Revision to State Water Quality Standards

The Washington State Department of Ecology Surface water standards for rivers, lakes, and reservoirs are in the process of being revised. Ecology is proposing to change from the current classification system to a use-based approach. This transition will also require adjustments to monitoring programs, wastewater discharge permits, TMDLs and the 303 (d) listing process.

Information on the proposed use-based standards is posted on the web at:
www.ecy.wa.gov/biblio/0010064.html

It is suggested that watershed Planning Units monitor development of Ecology's proposed revisions to the state water quality standards. This will affect the assessment of the degree to which water quality standards are attained in each WRIA. It may also affect the strategies developed to manage water-quality conditions. To assist in this process, the following information is provided as a general overview of the topics under review.

Use-Based Approach

Under the current classification system surface water is assigned to a class based on characteristic uses with lower classes supporting fewer uses. The uses are grouped together and cannot be dropped or added for a particular waterbody. The use-based standards will be structured to support the same uses as the current standards; however, they will also focus on more specific

standards to support endangered fish species. The use-based system will allow a single use to be dropped or added for a particular waterbody and the most protective criteria will apply. More protective measures including antidegradation standards will be applied in areas of more sensitive uses. Removal of a more protective standard is possible in a situation where a more sensitive use occurs unnaturally and a Use Attainability Analysis will be done to determine what standards are appropriate. In addition, a rule change is required to identify these areas.

In addition special consideration will be given to storm water ditches and constructed farm ponds that involve only incidental human contact. In this case the use-based system allows for relaxed bacteria standards where appropriate.

Uses supported in the proposed use-based system, selected from current supported uses include:

- Water Supply – agricultural (irrigation), domestic and industrial
- Salmonid Spawning
- Salmonid rearing
- Other fish spawning and rearing (non-anadronomous rainbow trout)
- Recreation – primary contact, secondary contact, sport fishing, and boating
- Aesthetics

New uses supported by the use-based system include:

- Bull trout and char – Documentation of existing use triggers this new standard. A rule change is required to identify these areas.
- Warm-water aquatic life – A Use Attainability Analysis is required to document natural conditions and to remove more sensitive uses. A rule change is required to designate these areas.

Antidegradation

The proposed rule includes an antidegradation policy that sets standards and procedures that will continue to ensure the support and protection of beneficial uses. Three Tiers have been identified for antidegradation protection. These Tiers are required in federal rule and exist in state standards. Specific implementation language is now being added.

- Tier 1 – Water quality must be maintained so as to fully protect existing in-stream beneficial uses.
- Tier 2 – Waters of quality better than the standards can only be degraded when shown to be necessary and in overriding public interest.

- Tier 3 – Establish a process for setting aside waters that constitute an outstanding national resource from any future degradation.

Proposed Criteria and Monitoring Changes

Existing surface water criteria requirements and monitoring and data collection practices will change regarding bacteria standards, dissolved oxygen and temperature, and ammonia.

Under the new standards criteria will be set and monitoring program will be established for enterococci in marine and fresh waters. The current bacteria standards focus on criteria and monitoring systems for coliform. The standards will begin to focus on enterococci criteria however marine waters adjacent to shellfish beds will continue to be monitored for coliform. New test procedures for enterococci will require that testing laboratories are certified and facility operators are trained.

Water quality standards regarding dissolved oxygen and temperature criteria have been reevaluated and are proposed to be changed. Dissolved oxygen and temperature standards will continue to be monitored however continuous monitoring for a minimum of seven days will be required for temperature. In addition, consistent sampling approaches will be developed to accurately determine overall conditions of waterbodies.

Water monitoring will occur for the new ammonia criteria as well. The new standards will be slightly less stringent than existing standards after the rule is adopted.

Effect on TMDLs

TMDL strategies and requirements will not differ substantially from existing requirements for most systems. New criteria will be used for evaluating progress and monitoring processes for bacteria standards, dissolved oxygen and temperature, and ammonia. If the criteria are too stringent or not stringent enough the existing TMDLs could be prioritized and changed accordingly.

Bacteria Standards will include sampling fecal coliform to monitor progress and enteroccoci data trends will be established. The implementation of enteroccoci sampling and monitoring will be adapted over time.

Effect on Point Source Discharge Permits

Wastewater discharge permits will also be changed to reflect the use-based requirements. Enteroccoci water quality effluent limits will be set and tested as fecal coliform levels are currently set and tested. Selected permits will be required to test both coliform and enteroccoci to establish technology-based

limits for the new indicator. Dissolved oxygen and temperature modeling and monitoring requirements will need to be implemented in the permit procedure. Ammonia standards will also be altered depending on the presence or absence of salmonid or other fish habitat.

Effect on 303(d) List

Waters with existing uses not currently protected according to the new standards will receive greater protection with the antidegradation policy. The new standards may also recognize waterbodies that have less sensitive uses and less stringent requirements. However, protection cannot be reduced for a waterbody without a Use Attainability Analysis and subsequent rulemaking. The next listing cycle following rulemaking would then reflect application of the changed criteria.

Proposed Temperature Criteria for Freshwaters

In the process of revising surface water quality standards to protect and set minimum requirements for lakes, streams, rivers, and marine waters Ecology re-evaluated the existing criteria for temperature and dissolved oxygen. Ecology's current water temperature criterion has been criticized for being both too stringent and not stringent enough to protect fish habitat. With new fisheries research and federal Endangered Species Act requirements, Ecology has reviewed new technical literature to bring temperature standards up to date. A work-group was formed to make recommendations for water temperature criteria to fully protect freshwater aquatic species. The temperature requirements specific to each species life stages were accounted for when developing the temperature requirements.

The existing water quality standards sets three temperature criteria that can be applied to rivers including 16C, 18C and 21C. These criteria are a one-day maximum limit not including a long-term assessment of temperature. The revised standards set six temperature criteria. The revised criteria and testing methods are more biologically accurate and reflect specific seasonal and life stage species requirements.

Table 2-2
Existing and Proposed Temperature Criteria

Key Species or Life Stage	1-day maximum	7-day average maximum
Existing Temperature Criteria		
Salmonid Spawning-Class AA	16C	None
Salmonid Spawning – Class A	18C	None
Salmonid Rearing – Class B	20C	None
Lakes and Reservoirs	No change from natural levels	No change from natural levels
Proposed Temperature Criteria with Use-Based Standards		
Bull Trout and Dolly Varden		11.5C
Spawning of Salmon, Steelhead, and Cutthroat Trout		13C Sept 15 – May 31 16C June 1 – Sept 14
Rearing of Salmon, Steelhead and Cutthroat Trout		16C
Non-migratory Rainbow and Redband Trout		18C
Warm Water Fish Species		20C
Wastewater Temperature Limitation	33C in mixing zone	N/A

Further information on temperature criteria is on the web at:
www.ecy.wa.gov/biblio/0010066.html

2.6.2 EPA's Development of an Alternative Approach to Setting Temperature Criteria

EPA is currently working with the States of Washington, Oregon and Idaho to develop new regional guidance for temperature criteria. The intent of this process is to ensure temperature criteria adopted by these three states are adequately protective of salmonids. The result would be guidance to supplement existing national water quality criteria, to meet the specific needs of salmonids in Pacific Northwest rivers and streams. Upon completion of the guidance, each state would consider revision of its state temperature criteria.

For those planning units that have included water quality or habitat in the scope of their watershed planning activities, this process may have significant implications, both in terms of assessment of water quality conditions and planning for actions designed to affect water temperature. It is suggested that representatives of planning units track this process as EPA and Ecology provide updated information and public workshops, anticipated late in 2001 or early in 2002.

2.6.3 Implementation of the Total Maximum Daily Load (TMDL) Program

The Federal Clean Water Act of 1972 requires that states develop plans to identify and correct polluted waters. Ecology has created water quality standards and has identified water bodies that do not meet these standards (i.e., the 303(d) list). If a water body fails to meet the water quality standards, Water Cleanup Plans (a.k.a., Total Maximum Daily Loads, or TMDLs) need to be developed to address the pollutants. A TMDL or water clean up plan is created based on sampling data and computer modeling.

In January of 1998 a cleanup schedule was developed to improve the health of nearly 700 water segments in Washington. A Memorandum of Agreement (MOA) was established outlining a schedule to improve polluted water and expand public involvement in Water Cleanup Plans.

Each year Ecology identifies waterbodies for which it will begin developing Water Cleanup Plans based on severity of the pollution, the potential harm to human and aquatic health and the barriers they pose for swimming, boating, fish habitat and other uses. Ecology has proposed a method for identifying priority waterbodies by choosing three or four Water Quality Management Areas (water basins) in the state each year and addressing all problems in the basin rather than working on individual creeks. The proposed Priority Water Cleanup Plans for year 2002 include water bodies in Whatcom, King, Thurston, Kitsap, Lewis, Pacific, Walla Walla, and Chelan Counties. TMDLs are always identified with the intention of having continuing public awareness and involvement throughout the process.

There are four Regional Offices in the state that manage TMDLs and water bodies. They include the central region, eastern region, northwest region, and southwest region. In addition, the size of the area covering all areas in the Columbia River Watershed requires a special Ecology/EPA organization to address the issues.

A TMDL is a scientific study to determine the levels of pollution present in a waterbody and to set targets (load allocations) to reduce the pollution so that the waterbody will return to meeting water quality standards. Most pollution today is coming from nonpoint sources. This requires the involvement and assistance of local residents, landowners, government agencies, and tribes to join together to develop economically feasible solutions (best management practices) so that the discharges coming from various sources can be effectively reduced.

Chapter 90.82.090 RCW has several provisions that address TMDLs. Planning units are directed to include, among other things:

- An examination of any TMDL established for nonmarine bodies of water in the management area, unless a TMDL process has begun in the

management area as of the date the watershed planning process is initiated.

- A recommended approach for implementing the TMDL established for achieving compliance with water quality standards for the nonmarine bodies of water in the management area, unless a TMDL process has begun in the management area as of the date the watershed planning process is initiated.
- Recommended means of monitoring by appropriate government agencies whether actions taken to implement the approach to bring about improvements in water quality are sufficient to achieve compliance with water quality standards.

Based on this language, the WMA appears to focus on adopted TMDLs. However, it should be noted that future developments regarding TMDLs in a WRIA may be relevant to the watershed plan under development. Therefore, planning units may also find it helpful to become informed about additional TMDLs that are planned for completion in their WRIA(s). Ecology can provide information on TMDLs planned for a given area. Exhibit 2-1 identifies the waterbody and WRIA for all TMDLs currently planned, by region (see "Approved" link in web site listed below).

More information on the TMDL program can be found on the Web at:
www.ecy.wa.gov/programs/wq/tmdl/index.html

2.7 Report of State Stormwater Policy Advisory Committee

The 1999 Legislature directed Ecology to form an advisory committee for the purpose of updating stormwater documents and making stormwater recommendations. Ecology formed an advisory committee for this purpose. As discussed in Section 3.6, Ecology will issue two stormwater technical manuals, one for western Washington and the other for eastern Washington.

The Stormwater Policy Advisory Committee, convened in 2000, developed recommendations to the 2001 Washington State Legislature about how to improve stormwater management in Washington. The Washington State Department of Transportation (WSDOT) in collaboration with Ecology and SWPAC elected to conduct a stormwater management study (Study) to develop these recommendations. The goals of the study were to:

- Clarify relationships among existing stormwater management activities in Washington
- Identify opportunities for improved efficiency and effectiveness
- Identify approaches for removing barriers to improved efficiency and effectiveness

Exhibit 2-1
Watershed Approach to Establishing TMDLS

Schedule for TMDL Submittal																		
State Fiscal Year (July 1 through June 30)																		
Water Quality Management Areas	98	99	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	Total TMDLs
Skagit/Stillaguamish, Columbia Gorge, Horse Heaven/Klickitat, Upper Columbia, Pend Oreille	12				14					15					18			59
Island/Snohomish, South Puget Sound, Okanogan, Crab Creek, Esquatzel	20					4					11					13		48
Nooksack/San Juan, Western Olympic, Wenatchee, Upper Snake, Lower Snake	4	19*					44					32						99
Kitsap, Lower Columbia, Upper Yakima, Mid Columbia	1		14					29					13					57
Cedar/Green, Eastern Olympic, Lower Yakima, Spokane	22			24					53					36				135
State Wide Group						115					400					653		1168
TOTAL ANNUAL TMDLs	59	19*	14	24	14	119	44	29	53	15	411	32	13	36	18	666		1566*
TOTAL 5 YEAR CYCLE TMDLs						249					552					765		1566
CUMULATIVE PERCENT OF ALL TMDLs						16%					51%					100%		100%

NOTES: Shaded areas are implementation startup years. *Includes Chehalis Temperature TMDLs not on the 1996 Section 303(d) list. Source: Department of Ecology

A report was prepared, entitled *Washington Stormwater Management Study: Report and Recommendations from the Stormwater Policy Advisory Committee.* The report addresses issues and recommendations at the statewide level, organized by the following four themes:

- Management Coordination
- Effectiveness
- Costs and Funding
- Technical Assistance, Outreach and Education

The report is available on the Web, at:
http://www.ecy.wa.gov/programs/wq/stormwater/swpac.html

2.8 New Rule on Shoreline Management

In December 2000, the Department of Ecology adopted extensive new rules regarding the content of Shoreline Master Programs. The 1995 legislature had directed that counties and cities amend their Shoreline master programs within two years of Ecology's adoption of revisions to the rules.

The scope and content of the rules, and the process leading to their adoption, was challenged by a variety of business and development organizations and numerous counties and cities. On August 27, 2001, the Washington State Pollution Control Hearings Board found the rule procedurally defective and not in compliance with the Shoreline Management Act.

As of this writing (late September, 2001), the parties to the litigation had agreed to try to settle the issue, and also will file appeals to preserve the option of pursuing the matter in the courts.

2.9 Panel on Watershed Plan Implementation

Watershed Management will require a substantial public investment to accomplish the goals established in state law. An effort of this scale must be thoughtfully conceived, adequately discussed and debated, and completed well in advance of the time that funding is needed. Ecology sought and received funding to have a panel engage in this work this biennium. The panel will be broadly representative of affected stakeholders, the legislature, county and city governments and other local jurisdictions, tribal governments and the general public interest. This panel will provide recommendations on how to pay for implementation along with other key operational issues associated with implementation of watershed plans. Ecology will be a member on the panel and will fund a third party contractor to facilitate and convene the body.

The panel will report findings and recommendations to the state legislature for its consideration in the 2003 session. They will provide an interim report to the legislature in year 2002.

Section 3
Coordination with Related Planning Activities

Several sections of the Watershed Management Act (WMA) imply a need for review and coordination with related planning activities. For example, Chapter 90.82.030 states that watershed plans *"shall be consistent with and not duplicative of efforts already under way in a WRIA…."* More specific provisions can be found at Chapter 90.82 sections 100, 110, and 120. In addition, many planning activities utilize or require information that is similar to that needed for watershed plans, and coordination with these related activities can improve the efficiency and effectiveness of the watershed planning process. This section addresses selected planning activities that local Planning Units may wish to consider in developing their watershed plan.

3.1 Salmon Recovery Planning

For watershed planning units that are addressing the habitat component under the Watershed Management Act, the Act provides that:

> …the watershed plan shall be coordinated or developed to protect or enhance fish habitat in the management area. Such planning must rely on existing laws, rules, or ordinances created for the purpose of protecting, restoring, or enhancing fish habitat, including the shoreline management act,…the growth management act,…and the forest practices act…. Planning established under this section shall be integrated with strategies developed under other processes to respond to potential and actual listings of salmon and other fish species as being threatened or endangered under the federal endangered species act…. Where habitat restoration activities are being developed under chapter 246, Laws of 1998 [the Salmon Recovery Act], such activities shall be relied on as the primary nonregulatory habitat component for fish habitat [in watershed planning]. [Chapter 90.82.100 RCW].

A number of efforts are ongoing with regard to salmon recovery in the State of Washington. For planning units addressing habitat, it is helpful to know what these efforts are, and how they affect the WRIA for which a watershed plan is being developed. This section provides an overview of selected efforts on salmon recovery that are particularly relevant to watershed planning.

In addition to the discussion below, please see Section 2.1.7 for a description of new funding made available by the 2001 Legislative Session, for salmon recovery planning at the local or regional level.

3.1.1 Coordination with Activities Under Salmon Recovery Act (ESHB 2496)

As noted above, planning units are specifically directed to rely on Salmon Recovery Act activities as "the primary nonregulatory habitat component for fish habitat." Therefore, it is important to review the activities called for in the Salmon Recovery Act. These are:

- The Governor's Salmon Recovery Office (GSRO), working with the Joint Natural Resources Cabinet (JNRC), is responsible for developing and updating the Statewide Strategy to Recover Salmon, the Salmon Recovery Action Plan for State Agencies, and the Salmon Recovery Scorecard. The GSRO is also responsible for preparing a "State of the Salmon Report" every two years. A high priority for GSRO and the JNRC is to support regional initiatives for salmon recovery, such as those of the Lower Columbia Fish Recovery Board, the Upper Columbia Salmon Recovery Board and the Shared Strategy for Recovery of Salmon in Puget Sound. As part of this support for regional initiatives, GSRO has developed materials to clarify the relationship of current watershed level efforts to salmon recovery such as: the Guidance on Watershed Assessment for Salmon (May 2001); and A Reference Guide for Salmon Recovery and the Roadmap for Salmon Habitat Conservation at the Watershed Level which will both be released as draft products in October 2001.

  The Web site for the GSRO is:
  http://www.governor.wa.gov/esa/

- The Salmon Recovery Funding Board (SRFB) was established to allocate salmon recovery funds to habitat projects that will provide the greatest benefits to salmonids. The SRFB has established criteria to review project proposals on prioritized lists submitted annually to the SRFB by Lead Entities. The SRFB has encouraged Lead Entities to develop habitat strategies to guide identification and prioritization of projects. After project lists are reviewed by a technical panel for the SRFB, the SRFB decides which projects will receive the available state and federal funding, After projects are approved for funding by the SRFB, staff in the Interagency Committee for Outdoor Recreation work with project sponsors to complete formal project agreements to administer the funds.

  The Web site for the SRFB is:
  http://www.wa.gov/iac.salmonmain.html

- The Department of Fish and Wildlife is responsible for the designation of lead entities statewide. This activity is performed using statutory guidance and Lead Entity Program guidelines. Lead entities are designated by WDFW biennially in association with grant contracts.

A current list of lead entities and contacts is available on the Web at:
http://www.wa.gov/wdfw/grants/leadlist.htm

- Lead entities are composed of three distinct bodies. The administrative body establishes a committee of representative interests to perform the main function of a lead entity, which is to identify and prioritize salmon habitat projects. The administrative body also establishes a technical group with the responsibility to inform the committee of representative interests on the scientific aspects of salmon recovery.
- In some cases, a designated lead entity under the Salmon Recovery Act is identical with a watershed planning lead agency under the Watershed Management Act, but in other cases they are distinct. Varying levels of overlap between the two groups currently exist.
- Lead Entities develop prioritized habitat project lists for consideration by the SRFB and other potential funding sources. Projects eligible for funding include habitat acquisition, in-stream passage, in-stream diversions, in-stream habitat projects, riparian habitat projects, upland habitat projects, estuarine/ nearshore marine habitat projects, and non-capital projects (assessments and/or studies). Assessments and studies must provide immediate benefits by enhancing the habitat project list.
- Lead entities apply critical pathways methodology, including limiting habitat factors analysis prepared by Washington State Conservation Commission in cooperation with Lead Entities. Limiting habitat factors analyses have been completed for many areas of the state. They should be consulted for issues relevant to watershed plans in each WRIA.

Each planning unit addressing the habitat element should rely on the above activities, rather than undertaking similar or duplicative activities.

The Watershed Management Act does not offer a clear statement of what Watershed Planning Units can or should do in addition to activities undertaken under the Salmon Recovery Act. As noted above, the Watershed Management Act does say that "the watershed plan shall be coordinated or developed to protect or enhance fish habitat in the management area." This implies that a watershed planning unit should consider how salmon recovery should be either "coordinated" with the other elements of watershed planning (water quantity, water quality, and setting of instream flows); or whether there are additional activities that may be "developed" to extend or complement existing salmon recovery efforts.

Experience with the Salmon Recovery Act and Watershed Management Act since 1998 offers some ideas for areas that may be appropriate for watershed planning units to address. The following three areas are suggested for consideration:

- First, the Salmon Recovery Act is primarily directed at identifying and funding "projects," including the categories listed above. The Salmon Recovery Act generally does not address broader "programs" undertaken by local governments or other entities and that are related (directly or indirectly) to salmon recovery. This would include regulatory programs under the Growth Management Act (including critical areas protection) and the Shoreline Management Act as well as nonregulatory programs such as various types of local tax incentives or credits. Watershed planning units may wish to address programs more fully, in the watershed plan.
- Second, the Salmon Recovery Act does not directly address building linkages between related programs having habitat improvement elements, at the local, state, and federal levels, or with the private sector and non-profit organizations. This is another area that may be appropriate for consideration in the watershed planning process. These programs are diverse, and include growth and land use management, shoreline management, forest management, stormwater management, transportation programs, and utility programs, among others.
- Finally, it would seem to be consistent with the Watershed Management Act for planning units to directly address how the other elements of a watershed plan are related to habitat improvement efforts in the watershed. For example, every watershed plan must address water quantity management strategies. In those WRIAs where the optional habitat element has been selected, the planning unit should explore how the recommended water quantity management actions affect habitat conditions. In those WRIAs where a watershed planning unit is also addressing the optional water quality and instream flow elements, the same principle would apply.

3.1.2 Examples of Salmon Recovery Planning Efforts that are Incorporating Watershed Plans into their Efforts

The following are three examples of regional salmon recovery efforts that will use watershed planning work as a part of their salmon recovery efforts:

- Lower Columbia Fish Recovery Board
- Upper Columbia Salmon Recovery Board
- Shared Strategy for Recovery of Salmon in Puget Sound

These examples are highlighted in the boxes on the following pages.

The Lower Columbia Fish Recovery Board

The Lower Columbia Fish Recovery Board is the Lead Agency under watershed planning for the WRIA 25/26 Grays/Elochoman and Cowlitz watershed planning unit and the WRIA 27/28 Lewis and Salmon/Washougal watersheds. It is also the Lead Entity under the Salmon Recovery Act for these watersheds and for WRIA 29 the Wind/White Salmon Watershed. The Board covers five counties in Southwest Washington. Clark, Cowlitz, Lewis, Skamania, and Wahkiakum

The Board was established in 1998 by state law. The Board's mission is to recover steelhead and other species listed under the Endangered Species Act through the development and implementation of a comprehensive recovery plan. The 15-member board is responsible for implementing the habitat portion of an approved state and federal recovery plan.

The composition of the Board is established in the enabling legislation RCW 77.85.200

> "The members shall consist of one county commissioner or designee from each of the five participating counties selected by each county legislative authority; one member representing the cities contained within evolutionarily significant Unit 4 as a voting member selected by the cities in evolutionarily significant Unit 4; a representative of the Cowlitz Tribe appointed by the tribe; one state legislator elected from one of the legislative districts contained within evolutionarily significant Unit 4 selected by that group of state legislators representing the area; five representatives to include at least one member who represents private property interests appointed by the five county commissioners or designees; one hydro utility representative nominated by hydro utilities and appointed by the five county commissioners or designees; and one representative nominated from the environmental community who resides in evolutionarily significant Unit 4 appointed by the five county commissioners or designees."

A Technical Advisory Committee assists the Board. This committee of experts and scientists make recommendations on technical issues related to salmon recovery. This group draws from existing knowledge and past efforts to advise the board on the regions water resources and habitat needs. The Board is the Lower Columbia region's lead agency for watershed planning efforts established by the state legislature in 1998 through House Bill 2514. This responsibility includes appointing multi-WRIA planning teams to determine the scope of planning in their watersheds. These Planning Units will address the major factors of decline in four main areas: water quality, quantity, habitat and instream flows.

In addition to the watershed planning efforts and Technical Advisory Committee activities, the Board has established several other sub-committees to address a variety of recovery issues. These committees include: Education and Outreach, Hydropower, Legislative, and Regional Planning. The committees and Board have prepared a workplan outlining goals, objectives and implementation schedules.

For more information, the Board maintains a web site at:

www.lcfrb.gen.wa.us

The Upper Columbia Salmon Recovery Board (UCSRB)

The Upper Columbia Region is comprised of the following water resource inventory areas: WRIA 44 *Moses Coulee,* WRIA 45 *Wenatchee,* WRIA 46 *Entiat,* WRIA 48 *Methow,* WRIA 49 *Okanogan,* WRIA 50 *Foster,* and a portion of WRIA 40 *Alkali/Squilchuck*. The following counties are in the Upper Columbia Region: Chelan, Douglas, and Okanogan.

The UCSRB is a committee of the North Central Washington Resource Conservation and Development Council which is supported by the Natural Resource Conservation Service. The mission of the Board is to restore viable and sustainable populations of salmon, steelhead and other at risk species through the collaborative efforts, combined resources, and wise resource management of the Upper Columbia Region.

The UCSRB has an Oversight Committee, the actual Board and a Regional Technical Team.

Oversight Committee: consists of a commissioner from each of the counties, policy representatives from the Colville Tribes and the Yakama Nation.

Salmon Recovery Board: consists of a commissioner from each of the counties, the Colville Tribes, and the Yakama Nation. Other invited Board Partners are: Public Utility Districts, Conservation Districts, Irrigation Districts, Port Districts, Municipalities, State Agencies, and Federal Agencies.

Regional Technical Team: technical staff and biologists from agencies, tribes and private representatives.

WRIAs 44, 45, 46, 48, and 50 and each of the counties in the region are engaged in both Watershed Planning under RCW 90.82 and Salmon Recovery activities. The Recovery efforts will coordinate and integrate NWPPC sub-basin planning, NMFS recovery planning (TRT work), and tribal recovery planning with the foundation of Watershed Planning efforts and 2496 efforts. These activities and plans will provide the foundation for the salmon recovery efforts in the region.

Shared Strategy for Recovery of Salmon in Puget Sound

The Puget Sound ESU consists of all or parts of 18 Water Resource Inventory Areas (WRIAs). The following WRIAs make up the Puget Sound ESU Region:

WRIA 1, Nooksack	WRIA 10, Puyallup/White
WRIA 2, San Juan	WRIA 11, Nisqually
WRIA 3, Lower Skagit	WRIA 12, Chambers/Clover
WRIA 4, Upper Skagit	WRIA 13, Deschutes
WRIA 5, Stillaguamish	WRIA 14, Kennedy/Goldsborough
WRIA 6, Island	WRIA 15, Kitsap
WRIA 7, Snohomish	WRIA 16, Skokomish/Dosewallips
WRIA 8, Cedar/Sammish	WRIA 17, Quilcene/Snow
WRIA 9, Green/Duwamish	WRIA 18, Elwha/Dungeness

The following counties are covered: Whatcom, Skagit, Island, San Juan, Snohomish, King, Pierce, Thurston, Mason, Kitsap, Jefferson, and Clallam.

The Shared Strategy intends to integrate individual watershed and local government efforts through common goals and develop a joint plan for achieving them. The primary intent of the Shared Strategy is to establish a collaborative process for developing a recovery plan for Puget Sound salmon that achieves the following objectives:

- The recovery and maintenance of an abundance of naturally spawning salmon at self-sustaining, harvestable levels;
- The broad distribution of naturally spawning salmon across the Puget Sound region; and,
- Genetic diversity of salmon at levels consistent with natural evolutionary patterns.

The Puget Sound Salmon Forum, a nonprofit organization, was recently created to help implement the Shared Strategy for Recovery of Salmon in Puget Sound.

Board of Directors provides formal oversight and fosters private sector support for the Shared Strategy. Recognized leaders in the private sector sit on the board.

Development Committee is composed of the leaders from government, business, environmental, and local watershed interests. It will direct the development of the recovery plan and promote immediate actions.

The Forum Council has broad based representation of local and regional salmon recovery interests. Watershed groups will be part of the Council and also provide critical information for the recovery plan.

The Shared Strategy has developed 5 steps to meet the objectives of the Strategy. Step 5 will rely heavily on the organizational structure of the RCW 90.82 watershed Planning Units and lead entities formed under RCW 77.85, the data collected for the plans, the actual plans and the implementation of those plans.

- Step 1: Identify the Contents of a Recovery Plan, Inventory Existing Efforts, and Determine Gaps.
- Step 2: Identify Interim Recovery Goals for Each Watershed.
- Step 3: Begin to Identify the Actions Necessary to Achieve Recovery Goals.
- Step 4: Identify and Evaluate Regional Recovery Options.
- Step 5: Commit to Watershed and Regional Recovery Goals and the Actions Necessary to Achieve Them, and Monitor Results.

Additional information can be found on the web at:
www.sharedsalmonstrategy.org.

3.1.3 Guidance on Watershed Assessment for Salmon Recovery

The Governor's Salmon Office put together a team to develop *Guidance on Watershed Assessment for Salmon (Guidance)*, released May 2001. The purpose of the Guidance document is to help watershed groups, state agencies, and others understand what kinds of assessment are needed to support decisions about projects and other actions to protect and restore habitat for salmon.

Many existing technical assessments, such as Limiting Factors Analyses completed by the Washington State Conservation Commission under the Salmon Recovery Act and assessments completed by Planning Units under the Watershed Planning Act, provide much of the information identified in the *Guidance*. In addition, although the *Guidance* focuses on salmon habitat its key components and products are useful in other initiatives, such as the inventory of shoreline conditions under the Shoreline Management Act, the designation and protection of critical areas under the Growth Management Act, and water quality and water supply assessments.

The *Guidance* is divided into three sections. The first section is an overview that discusses what an assessment is and acknowledges the current assessment work occurring in Washington. The second section is titled, "Stages of Assessment." The premise is that there are a variety of assessments completed or underway and, depending on the assessment, it can help answer these three basic questions:

- What habitat conditions are limiting salmon production?
- What processes or land uses are causing the habitat conditions?
- What linkages exist between salmon and habitat conditions?

Depending on the data available and assessment completed for a specific watershed, there are types of projects which can be supported by aligning the assessment information available with a specific preservation, protection or restoration project proposal.

The *Guidance* recognizes that actions to fix relatively simple problems can be effective even though limited information is available, especially when the causes of the habitat problem are obvious and confidence in the reliability of the project or other action is high. The *Guidance* also recognizes that complex problems and solutions involving higher risks will require more comprehensive information and analysis. The Joint Natural Resources Cabinet is urging agencies and other groups to use the concepts in the *Guidance* in making decisions regarding salmon habitat protection and restoration.

The *Guidance* is intended to help watershed groups, agencies, and others understand what kinds of assessment are needed to support decisions they make on various types of projects and other actions to protect and restore habitat for salmon. It will assist funding entities such as the Salmon Recovery Funding Board and watershed groups to evaluate the adequacy of assessment information, identify areas that need further assessment, and support projects with the greatest benefit to salmon. It will also help watershed groups identify other types of actions, both regulatory and non-regulatory, that may be needed to protect salmon habitat.

To the extent that increasingly consistent analyses and information from individual watersheds is available, the ability to address salmonid recovery questions in broader areas or regions (e.g., Puget Sound, Lower Columbia), will also be enhanced.

Additional information can be found on the web at:
http://www.governor.wa.gov/esa/watershed/watershed.htm

3.1.4 Roadmap for Salmon Habitat Conservation at the Watershed Level

The Governor's Salmon Recovery Office is developing this document to provide assistance to everyone who is working with local watershed and salmon recovery groups on habitat conservation strategies as part of salmon recovery. The goal of the Roadmap is to show how all of the federal, state, regional, and local efforts to conserve salmon habitat and address declining salmon populations can work together to make progress toward recovering salmon. In this context, "salmon" includes all salmonid species native to Washington.

In order to develop salmon habitat conservation for a watershed to the point that it can be accepted by federal agencies as part of a formal recovery plan, these efforts will need to include the ingredients required by the National Marine Fisheries Service and the U.S. Fish and Wildlife Service:

- Substantive and proactive conservation elements
- A high level of certainty that salmon habitat conservation will be reliably implemented, including necessary authorities, commitments, funding, staffing and enforcement measures
- A comprehensive monitoring program

The Roadmap picks up where the *Guidance on Watershed Assessment for Salmon* and the Reference Guide (see below) end. It emphasizes that effective habitat conservation must be based upon watershed assessment. The Roadmap is organized into four sets of questions that provide guidance to

help ensure that these three ingredients are addressed in salmon habitat conservation for a watershed.

1) Current Situation in the Watershed: Where are we?
2) Objectives, Strategies and Priorities: Where do we want to go?
3) Implementation: How will we get there?
4) Monitoring Progress: Did we make it?

Many of the activities that would respond to these questions as they are outlined in the roadmap document will provide a good foundation for the habitat element of watershed plans developed under the Watershed Planning Act.

It is anticipated that the Roadmap document will be available at the same web site referenced in Section 3.1.3, beginning around the end of the year 2001.

3.1.5 Reference Guide for Salmon Recovery

The Governor's Salmon Recovery Office is also developing a Reference Guide for Salmon Recovery. This document provides background information on what is going on at different geographic scales of salmon recovery: coast-wide, statewide, regional, and in watersheds. This is intended to help people involved in watershed-level work understand the broader context of salmon recovery. It is anticipated the Reference Guide will be available at the same web site referenced in Section 3.1.3, when available around the end of the year 2001.

3.2 Local Land Use Planning

Local comprehensive land use plans, especially those adopted under the Growth Management Act (GMA), are a vital element in developing watershed plans. This is true for a number of reasons. First, they are comprehensive in their scope, considering policy issues such as accommodating population growth, assigning land uses, implementing economic development goals, designating natural resource lands, and designating and protecting critical areas. Second, they are typically developed with extensive public participation, and include legal actions of local elected officials which represent the official expression of local policies under state law. Third, they typically involve review of environmental considerations under the State Environmental Policy Act (SEPA). Finally, comprehensive plans contain many elements that affect local or regional needs and actions involving water resources.

For all of these reasons, information contained in land use plans should be viewed as a key input to watershed planning efforts. In addition, the actions recommended in watershed plans should be carefully designed to be consistent with shoreline

environment designations under SMA and land use plans[1]. Coordination with local land use planning authorities during both the assessment and planning phases will help to make watershed plans truly implementable.

In many Water Resource Inventory Areas (WRIAs), county land use plans may have more content that is directly applicable to the watershed plan, compared with land-use plans prepared for individual cities or towns. This is because the geographic scale of a county is more comparable to the scale of a WRIA. However, certain aspects of municipal land use plans may be applicable as well. It is recommended that staff preparing watershed plans review the *county* land use plans for all counties with land inside the applicable WRIA(s). With regard to *municipal* land use plans, it is recommended that Planning Units involve planning staff from local towns and cities to ensure pertinent information is brought into the watershed planning process, and review selected documents as applicable.

While most counties in the state must prepare comprehensive land use plans pursuant to the GMA, others do not. All counties and cities must designate resource lands and designate and protect critical areas under the GMA. While this discussion is oriented towards planning under GMA, much of the content below is also relevant in non-GMA counties.

3.2.1 Use of Land-Use Plans in the Assessment Phase

During the Assessment Phase (Phase II) of watershed planning, land use plans can be used to identify pertinent data. Contact with planning staff at local jurisdictions can facilitate this process. Many Planning Units have included these staff as members of their Planning Unit or associated committees. In many cases this will be a "two-way street," as the information compiled for the watershed plan may also contribute to updates of local comprehensive plans.

Some aspects of land use plans with particular application to the *Assessment* Phase are:

- Demographic data and growth forecasts (population, housing, employment, etc.);
- Delineation of urban growth areas;
- Land use designations that guide where development will occur, and at what densities; where rural land and resource lands (forest, mineral and agricultural lands of long-term significance) are located, state and federal lands, etc.

[1] In some cases, watershed plans may help identify a need for refinement or revision of land-use plans, during the annual process of updating these plans.

- Discussion of utility services, including water, wastewater and stormwater management, together with identification of the areas where these services are currently provided or will be provided in the future, and opportunities for conservation or reuse; and,
- Identification of additional local or regional entities with key planning responsibilities or data, such as regional planning councils or councils of governments.

It is important to recognize that watershed plans are organized by WRIA, and therefore cross local jurisdictional boundaries of both cities and counties. This poses some difficulties for analysis using the data from land use plans. For example, demographic data at the countywide level may need to be broken down between WRIAs. This can often be done to a reasonable degree of precision by segregating municipalities by WRIA, and examining the unincorporated population separately, with the involvement of county planning departments.

It is also important to consider the dates when data for land use plans was compiled, and whether updated information on some aspects is available (e.g., year 2000 Census figures). Since land use plans are updated periodically, the responsible local jurisdiction may already be assembling or analyzing updated data that can be transferred to the watershed planning process.

3.2.2 Use of Land-Use Plans in the Planning Phase

During the Planning Phase (Phase III) of watershed planning, it is important to identify the policies and actions identified in local land use plans and development regulations. In addition to the items listed above, aspects of land-use plans with particular application to the *Planning* Phase include:

- Countywide planning policies, including those with particular relevance to water resources and regional coordination;
- Policies on regional integration of utility services, water conservation goals, coordinated water system plans, water supply, wastewater treatment plants, water reclamation and reuse, etc.;
- Identification of specific capital projects that may be relevant to water-resource management located within the 6-year capital facilities element;
- Discussion of economic development alternatives and potential changes in the local mix of economic activities;
- Identification of critical areas, such as aquifer recharge areas, wetlands, fish and wildlife conservation areas (including riparian areas), and discussion of programs and regulations to protect these areas; and,

- Identification of key environmental issues, including those relevant to water-resource management, responses to federal listings of threatened and endangered species, etc.

Water resource management strategies being developed for the watershed plan should be reviewed for consistency with these locally adopted policies and actions. It is recommended that any inconsistencies should be flagged and addressed, with the participation of the local jurisdictions involved.

3.3 Water and Wastewater Utility System Planning

Utility systems with responsibility for water supply and wastewater treatment have a significant role to play in management of water resources at the watershed level. Their planning documents describe utility system features, explain their uses of water resources, and identify future capital projects that may be related to the watershed plan. This section provides information on utility system plans that Planning Units should consider in the assessment and planning processes.

3.3.1 Public Water Systems

Public water systems use surface-water or ground water sources, and treat, convey and deliver water to citizens and businesses in local communities. Public water systems can be operated by cities or towns, water districts, public utility districts, counties, private businesses, and homeowner associations. They range in size from small systems that serve only a few households, to large regional organizations serving major urban areas. Some WRIAs may have many water systems, while others have only a few.

Public water systems meeting certain criteria are required to submit a water system plan to the State Department of Health (DOH) every six years. These plans are required to address a variety of issues related to water supply sources, physical facilities, water quality, water rights, demand, conservation, operations, capital projects, and finances. These plans can offer useful information to Planning Units in the preparation of watershed plans. To initially identify water system plans related to a given WRIA, a request can be submitted to DOH. While it may be overly burdensome to review every water system plan within a WRIA, those plans of particular significance should be identified and reviewed. Participation of water system managers or staff in the watershed planning process can aid in this process and help to ensure accurate and up-to-date information is utilized in the watershed plan.

Some of the components of a water system plan that are likely to be of particular value in the watershed planning process are:

- Definition of the utility service area(s) (this is often different from municipal boundaries);
- Data on the number of customers served;
- Data on supply sources, water rights, and physical facilities;
- Data on current demand characteristics;
- Projection of future demographic conditions and water needs within the utility service area(s) (typically to a 20-year planning horizon);
- Identification of strategies to meet these needs (e.g. further development of water sources, water conservation, water reclamation and reuse, etc.); and,
- Planned projects and associated costs.

Many communities are served by more than one water supply system, with service areas that abut each other (or in some cases, overlap). In addition, it is important to recognize that some communities are also served by irrigation districts or ditch companies that deliver water to households for outdoor landscape irrigation or other uses. This is particularly common in some parts of eastern Washington. Where this is the case, a Water System Plan developed by the public water system may or may not fully address outdoor uses. Other needs that may not be fully addressed in the water system plan are self-supplied industrial or commercial uses; and individual household wells (a.k.a. "exempt wells").

One area where water system plans can be particularly valuable is in the definition of strategies to meet water-supply needs in the WRIA, as required in Chapter 90.82.070 RCW. For municipal supplies, Planning Units should become familiar with the strategies already identified by local water systems to meet community needs. These strategies, and associated projects may already be permitted and funded, or may require long lead times to develop. It is suggested that Planning Units work closely with water system managers to ensure consistency between the watershed plan and adopted water system plans in this regard.

3.3.2 Wastewater Systems

Like public water systems, wastewater collection and treatment systems may be owned and operated by a variety of organizations, including cities, counties, sewer districts, public utility districts, and private companies or associations. They range from small community systems serving a single subdivision or industrial site to large regional systems serving millions of people.

There are three main types of wastewater plans applicable to watershed planning, that are prepared under various circumstances:

- General sewer plan, prepared by the owner or operator of a wastewater treatment facility and providing a comprehensive overview of facilities, needs, and capital projects;
- A sewerage general plan at the county level, prepared by a county and assessing countywide facilities, needs and capital projects; and,
- Engineering report or facility plan, detailing a specific project to be constructed.

In general, the first two categories are most likely to be applicable at the scale of a watershed plan. An engineering report or facility plan may be applicable if it covers a project with major implications for water quality in a particular WRIA. The remainder of this section primarily deals with the content of general sewer plans or sewerage general plans.

Some of the components of a general sewer plan or a county sewerage general plan that are likely to be of particular value in the watershed planning process are:

- Definition of utility service area (this is often different from municipal boundaries);
- Data on the number of customers served;
- Data on characteristics of the raw and treated wastewater, and physical facilities;
- Data on current wastewater flows;
- Projection of future demographic conditions and wastewater conveyance and treatment needs within the utility service area (typically to a 20-year planning horizon);
- Consideration of opportunities for using reclaimed water, and,
- Planned projects and associated costs.

The primary application of this information will typically be in the water quality element of a watershed plan. Not every Planning Unit chooses to include this optional element. For those Planning Units that are addressing water quality, it is suggested that they identify any general sewer plans or county sewerage general plans affecting the WRIA, and become generally familiar with their content. One way to begin this process is to obtain a list of permitted wastewater treatment plants from Ecology. If detailed analyses of inputs from wastewater system are needed as part of the water quality

analysis, these plans should be reviewed in detail, and the local wastewater management authority should be involved in the planning process.

The TMDL process is related to wastewater planning. Further information on TMDLs is presented in Section 2.

Wastewater reclamation and reuse is an emerging issue for wastewater utilities in many areas. Further information on this topic is included in Section 4.2. This topic may be addressed in the planning documents described above, or in separate studies prepared by the local wastewater authority.

3.4 Shoreline Management

The Shoreline Management Act (SMA) requires local governments to write "shoreline master programs" that regulate streams, lakes over 20 acres, and marine waterfronts. Each County and City is required to have Shoreline Master Programs in place. Ecology updated the 1971 Shoreline rule in 2001, but the Shorelines Hearings Board repealed the update in September 2001. Even though there has been a repeal a number of jurisdictions are proceeding under the repealed rule. Moreover, the shoreline master programs that currently exist under the original law remain valid and are relevant to the optional habitat portion of a watershed plan.

Under the SMA local officials are asked to identify the "ecological functions" performed by shorelines and protect them (and restore them over time) based on what the local environment needs. A key step in protecting ecological functions is conducting an inventory of shoreline conditions. Most local governments conducted inventories of their shorelines in the mid-1970s, when they adopted their first master programs.

These inventories can provide valuable data to the planning unit for not only the habitat portion of their plan but also for the water quality portion. Likewise jurisdictions that are beginning to update their programs will find valuable information in the watershed assessment portion of locally developed watershed plans.

3.5 Comprehensive Irrigation District Management Plans

As part of the Washington State's Agriculture, Fish and Water process, guidelines were developed in 2001 for preparation of Comprehensive Irrigation District Management Plans (CIDMPs) by irrigation districts. The intent was to develop a voluntary and incentive-based process for improving irrigation district operations in response to both Endangered Species Act (ESA) and Clean Water Act (CWA) concerns. The CIDMP process allows each district the flexibility to address ESA and CWA issues in an individualized manner specific to its operations, while

seeking appropriate assurances from federal agencies. This is a new process, and it may be some time before irrigation districts complete CIDMPs or similar planning documents.

Some of the key elements of a CIDMP include an inventory of irrigation district facilities, operations and needs; an assessment of district impacts on water quality and fish habitat together with a determination of related needs; and a comprehensive action plan for meeting the identified needs.

Upon completion, CIDMPs or similar planning documents prepared by irrigation districts may provide valuable information for use by watershed planning units. First, since irrigation districts are an important category of water user in many WRIAs, the CIDMP can help planning units to understand and document their facilities, operations and needs. Second, where a planning unit is addressing water quality issues, the CIDMP can contribute to the information used in assessing water quality conditions and documenting the relationship between irrigation district activities and surface water quality. Finally, for those planning units addressing habitat issues, the CIDMP may help address the relationship between irrigation district activities and habitat conditions.

In addition to the assessment information provided in the CIDMP, planning units may find it valuable to review the actions listed in each plan, and to determine how these planned actions relate to actions that will be identified as part of the watershed plan.

3.6 Stormwater Management

Stormwater management is generally performed by local government jurisdictions, such as cities, towns, or county governments. Where stormwater plans have been prepared, they typically cover relatively small hydrologic basins within the boundaries of the jurisdiction involved. In most instances the area involved is much smaller than a WRIA.

A comprehensive stormwater management program will address both water quality and water quantity issues related to development of urban or suburban lands. Depending on the specific focus of the watershed plan, and the scale of analysis, stormwater management plans may, or may not be readily applicable to development of the WRIA-scale watershed plan. Each planning unit will need to evaluate the significance of stormwater management programs, in the context of the goals for the watershed plan.

3.6.1 Stormwater Management Program Requirements

General

There is no statewide requirement that local entities develop stormwater management plans, as such. Some local governments have chosen to develop stormwater management plans, which can address their planning considerations for approval requirements for specific projects within their community, as well as the community's short and long term plans for construction of stormwater-related facilities.

Puget Sound Basin

Within the Puget Sound Basin, the Puget Sound Water Quality Management Plan directs every city and county to develop and implement a comprehensive stormwater management program. Some elements that are to be included in these programs are:

- Adoption of local ordinances that require the use of Best Management Practices (BMPs) to control stormwater flows, provide treatment, and prevent erosion and sedimentation from all new development and redevelopment projects.
- Adoption and require the use of Ecology's Stormwater Technical Manual (or an approved equivalent manual) to meet their ordinance objectives.
- Participation in watershed or basin planning processes, such as under Chapter 400-12 WAC or Chapter 90.82 RCW

Phase I Stormwater Permits

The following local governments and State agency are subject to permitting under the U. S. Environmental Protection Agency (EPA) Phase I Stormwater Regulations:

- Clark County
- King County
- Pierce County
- Snohomish County
- Seattle
- Tacoma
- Washington State Department of Transportation (WSDOT)

As a condition of these permits, which were issued in 1995, these entities are required to implement stormwater programs that must include ordinances (except WSDOT), and BMPs.

Phase II Stormwater Permits

The EPA adopted Phase II stormwater regulations in December 1999, which identified additional municipalities as subject to stormwater permitting requirements. For example, these include:

- All local governments which own or operate a municipal separate storm sewer system, and which are located in an "urbanized area" as defined by the Bureau of the Census;
- Additional local governments located outside an urbanized area, with populations of 10,000 or more, and with population densities of 1,000 persons per square mile;
- Additional local governments located outside an urbanized area, which are physically interconnected (through sewer systems or roads that drain into sewer systems) with a local government covered under the categories above; and,
- Additional specific categories of local governments, municipal industrial facilities, and federal and state facilities defined in EPA regulations.

It is estimated that approximately 90 additional municipalities in the State of Washington will be subject to these permitting requirements. Ecology has not specifically identified these additional municipalities at this time, but criteria have been established for this determination.

Permits for Phase II are scheduled to be issued by December 2002. The identified communities will have until March 2003 to submit their stormwater programs to comply with the permit requirements. Ecology is intending as a minimum that the identified Phase II communities adopt ordinances, minimum requirements, and BMPs equivalent to those in Ecology's updated stormwater management manual (see below).

Municipalities not in the Puget Sound Basin and not in Phase I or Phase II

Municipalities that are not within the Puget Sound Basin, and that are not subject to Phase I or Phase II permits, are not required to adopt stormwater management programs.

3.6.2 Ecology Stormwater Management Manual

Ecology's existing stormwater manual was developed in 1992 in compliance with the Puget Sound Water Quality Management Plan.

An updated manual for Western Washington is nearing completion with the publication of the five volume Stormwater Management Manual for Western Washington scheduled for September 2001.

Ecology has initiated plans for development of a stormwater management manual for Eastern Washington. Ecology currently plans to begin development of this manual by the end of December 2001 and to complete it by June 2003.

3.6.3 Application to Watershed Planning

Municipal stormwater management programs are most directly related to the water quality component, which can be selected as an element of watershed planning under the WMA. For those WRIAs where municipal runoff is considered a significant factor in basin water quality conditions, it would be valuable to review the major elements of stormwater management in local areas. However, the extent of this review may be limited by the resources available to support watershed planning, and the number of programs in place within the WRIA.

Stormwater management programs also may have elements that relate to the volume of runoff, and associated timing and volume of surface water flows. In many cases, the scale of analysis may not be suitable for basin-wide planning efforts such as a watershed plan. In other cases, however, where a detailed review of urbanized sub-basins within a WRIA is developed for a watershed plan, stormwater management programs may provide valuable input to the watershed plan.

3.7 Flood Hazard Management

Chapter 90.82 RCW does not identify flood hazard management as an item to be addressed through watershed planning. In some WRIAs, however, it is possible that flood control structures and flood hazard management programs may be related, either directly or indirectly, to the subject matter of a watershed plan (i.e. water quantity, water quality, habitat and/or instream flows). It is suggested that each planning unit consider whether and how flood programs may be related to their watershed planning efforts, and the extent to which flood hazard information should be included in the planning process.

If a planning unit does wish to address flood hazard management programs, the following information may be worthy of consideration:

- Presence of flood control dams, dikes or other structures in the WRIA. If such structures are present, it may be useful to assess how they affect flows, water supply, habitat conditions, and water quality. A planning unit may wish to review Federal Energy Regulatory Commission (FERC) licenses or other documentation relating to dam operational considerations. It may also be important to involve facility owners/operators in planning discussions, to fully understand how their activities affect the river system.

- Comprehensive Flood Hazard Management Plans prepared by local jurisdictions. The State of Washington provides funding, under the Flood Control Assistance Account Program (FCAAP), to local jurisdictions for flood hazard planning and projects. Activities may include development of programs regulating development in floodplains, identification of structural projects or floodplain modifications, etc. In WRIAs where such activities have been carried out, it may be useful for the Planning Unit to review plans and to identify existing and/or upcoming projects. In keeping with the provisions of Chapter 90.82 RCW, the primary focus should be on those elements that affect water supply, water quality, habitat conditions, and/or instream flows (depending on which elements have been designated for watershed planning in each WRIA).

- Floodplain Management Ordinances. Many local jurisdictions have developed floodplain management ordinances that ensure eligibility for coverage under the National Flood Insurance Program. These ordinances generally address standards for development in floodplains, and are administered through the local jurisdiction's building permit program. In general, these ordinances have little direct application to the issues covered in watershed planning. However, a planning unit may wish to consider whether there are indirect linkages to the topics under consideration in a watershed planning process.

Section 4
Strategies for Managing Water Quantity

The Watershed Management Act (WMA) identified four elements for watershed planning: water quantity, water quality, habitat and instream flows. Only one of these, water quantity, is a required element for Planning Units that accept a watershed planning grant (the remaining three elements are optional). WMA outlines the requirements for this element, including assessment of water supply and use in the Water Resource Inventory Area(s) (WRIAs) involved, and review of strategies for managing water supply.

This section of the Addendum provides additional information on the strategies for managing water supply. As listed in the Chapter 90.82.070 RCW, these strategies may include, but are not limited to, increasing water supplies through:

- Water conservation
- Water reuse
- Use of reclaimed water
- Voluntary water transfers
- Aquifer recharge and recovery
- Additional water allocations
- Additional water storage
- Water storage enhancements

For each of these categories, the following sections provide information and examples that may be helpful to Planning Units reviewing strategies for managing water supply.

4.1 Water Conservation

One definition of water conservation is "any beneficial reduction in water losses, waste, or use" (EPA, 1998, Water Conservation Plan Guidelines). The actions that can be used to achieve conservation goals, and the issues that arise, can vary depending on the type of water use targeted. For purposes of this Addendum, three categories of potential conservation activity are addressed: conservation in the municipal water supply context, conservation in the agricultural water supply context, and conservation at industrial facilities.

4.1.1 Water Conservation in the Municipal Context

In the municipal context, water conservation consists of a range of activities involving both water systems and their customers. Appendix B provides

examples of water conservation measures that can be applied in the context of public water systems.

At the customer end, "demand-management" programs use elements such as public information to encourage customers to manage their water use; installing high-efficiency plumbing fixtures and appliances; and using rate structures to provide economic incentives for water-use efficiency. These programs typically target certain types of water use that are particularly large for a given community, such as residential indoor uses, residential outdoor uses, non-residential indoor uses, and non-residential outdoor uses.

With respect to the public water system itself, conservation involves improving the efficiency of water system operation, by minimizing losses and managing system uses such as flushing of water mains, draining storage reservoirs for maintenance, and finding and repairing leaks in water mains.

Conservation activities may be designed to achieve long-term, permanent reductions in water use per capita, or to achieve temporary, short-term reductions to respond to dry conditions or other emergencies. Both types of programs may be important in the context of developing a watershed plan.

State Requirements and Guidelines for Public Water Systems

Conservation requirements for public water systems are described in a handbook entitled "Conservation Planning Requirements," (1994) issued jointly by Washington State Department of Health (DOH) and Department of Ecology (Ecology). The requirements vary, depending on the number of customers served by the public water system[1]. The handbook identifies the following requirements:

- Systematic collection of data, in categories such as source production, water imported through interties with adjacent systems; wholesale purchases; non-revenue water; and sales to various customer categories such as single-family, multi-family, commercial/government/industrial, population served, water rates, and conservation measures implemented.
- Water systems are required to forecast average daily demand and peak daily demand, for planning horizons of 6 years and 20 years. The forecasts must show usage both with and without the conservation program.

[1] Water systems are subdivided into the following four categories: those with fewer than 1,000 service connections; 1,000 to 10,000 service connections, 10,001 to 25,000 service connections; and, greater than 25,000 service connections. As a very general rule of thumb, one service connection typically corresponds to approximately two to three people living in the community. All four categories apply to data collection. For demand forecasting and conservation plans, some of these categories are merged to yield only three categories.

- Systems with greater than 25,000 connections must incorporate information on rates into their demand forecast.
- Identification of goals and objectives of the conservation program, which meet that system's specific needs.
- It requires the public water system to evaluate all of the conservation measures that are identified as "recommended" for that size system. The system is not required to implement the recommended measures, but must explain decisions not to implement them.
- The water system must describe the measures selected for implementation, provide information on the schedule and budget associated with each measure, identify steps taken to monitor program success; and identify a percentage goal for water savings of the conservation program.
- Source meter installation is required for all new or expanding public water systems needing additional water rights;
- Program promotion (i.e., use of news media, advertising, brochures, and other means to publicize the need for water conservation) is a required element of all water conservation programs;
- All water systems must consider the benefits and costs of installing individual service meters;
- All water systems must consider the benefits and costs of implementing rate structures designed to promote conservation; and,
- Public water systems that have "unaccounted-for" water[2] greater than 20 percent must implement a program to detect and repair leaks, evaluate and repair meters, or correct other system operation problems.

The handbook indicates that water systems must submit a water conservation plan as a condition for approval of Water System Plans and issuance of new water right permits. The handbook indicates that "in general, the selection and implementation of conservation measures should be determined by the cost of a measure in relation to the value of the water conserved; i.e., by the relation of benefits and costs."

The handbook also discusses requirements and recommendations specifically designed for other types of water systems or multi-system groupings. These include regional systems; wholesale water suppliers and their customers (i.e., other public water systems); and "satellite systems."

[2] Unaccounted-for water is defined as "water which is lost through leaks, evaporation, or use that is not recorded and/or accounted for." This does not include water that is not billed to customers but that is accounted for by other means, such as fire protection, system flushing, and other designated uses tracked by the public water system.

Experience with Municipal Conservation Planning

Since the Conservation Planning Requirements were developed in 1994 many public water systems have prepared water conservation plans, typically as part of their overall process to prepare a water system plan, which is also mandated by DOH. Numerous examples of these plans are available to watershed Planning Units, either from DOH or from the public water systems located in each WRIA.

The specific measures adopted in each conservation plan can vary substantially, from one water system to another. Both the objectives defined by the water system, and the costs and benefits of alternative measures can be highly variable. This is due to factors such as:

- Source of water supplied (e.g., surface water vs. ground water), water rights status, and related factors that may constrain production;
- Capacity of existing sources to meet current and projected demand;
- Capacity of other infrastructure such as treatment, transmission, and storage facilities;
- Relationship between average daily demand and peak daily demand;
- Age and condition of the water system;
- Extent to which customer consumption is metered;
- Makeup of the water system's customer base (e.g., breakdown of residential, commercial, industrial, and other uses);
- Climatic conditions in the region; and,
- Presence or absence of complementary water-supply systems serving the same customers (e.g., ditch companies or irrigation districts supplying water for outdoor uses).

It is suggested that each watershed planning unit include representatives of local water systems and review the water conservation plans prepared by these water systems, to understand the role that conservation can play in meeting the needs of local communities.

Additional Issues Related to Municipal Conservation

As part of a regional review of water supply and demand, the Central Puget Sound Water Suppliers Forum recently convened a work group to examine the role water conservation can play in the municipal context. One product of this work group was a discussion of key issues requiring further examination, such as:

- Political acceptance of conservation objectives and approaches
- Education and outreach
- Effects of pricing and rate structures on consumer choices
- Methods for evaluating economic aspects of conservation
- Balancing regional coordination with local control
- State water law
- State role in promoting conservation
- Coordination between land-use management and water-resource management

Many of these issues may also be relevant to watershed Planning Units evaluating how conservation can contribute to meeting water-resource needs in each WRIA. Therefore, the discussion of key issues is reproduced in Appendix C of this Addendum.

4.1.2 Water Conservation in the Agricultural Context

In the agricultural context, water conservation involves different technologies and approaches, in comparison with the municipal sector. The following information may be of use to Planning Units in developing a framework for consideration of agricultural water-use efficiency. One basic element in this breakdown is a consideration of the differing techniques and applications involving the water delivery systems owned and operated by irrigation districts, and the on-farm techniques and applications that would be implemented by individual agricultural producers.

Irrigation District Efficiency Measures

Irrigation districts play a key role in the agricultural industry in many areas of the state, by financing, constructing, maintaining and operating water diversion and delivery systems. Irrigation districts do not themselves irrigate land, but instead convey and deliver water to agricultural producers for their use. The facilities managed by irrigation districts lend themselves to certain types of water use efficiency measures. Examples of these measures are:

- Lining of earthen canals to reduce losses through infiltration
- Replacement of canals with closed piping systems
- Pump-back stations to capture tailwater for re-use
- Canal automation and re-regulation reservoirs to reduce spills and optimize use of water diverted
- Improved water measurement and accounting systems to in effective management of water diverted

It is important to recognize that these measures may or may not reduce consumptive use of the water diverted. In many cases, water that is "conserved" would have returned to nearby water bodies as part of return flows through the irrigation district's drain system, or would have entered the shallow ground water system through percolation. The exact mix of reductions in consumptive use and non-consumptive use depends on the specific measures applied and local conditions.

On-Farm Efficiency Measures

Efficiency measures at the farm level would typically be implemented by the landowner and/or agricultural producer raising a crop or producing livestock. Examples of on-farm measures are:

- Replacement of unpressurized irrigation systems with pressurized spray systems, microspray or drip systems;
- Use of soil moisture sensors to optimize water applications;
- Refinement of irrigation scheduling to optimize water-use efficiency; and,
- On-farm ponds or pump-back systems to capture and reuse tailwater.

As with conservation measures applied by irrigation districts, the mix of water savings between consumptive and non-consumptive uses can vary depending on the technology applied and local conditions.

It is also important to recognize that for water supplies delivered by an irrigation district, water savings at the farm level accrue to the entire district.

Additional Issues Related to Agricultural Water Conservation

With regard to agricultural water conservation, issues that affect the incentives and implementation of measures may include:

- Provisions in state water law regarding "relinquishment" of water;
- Disposition of conserved water (e.g., for irrigation, benefits to other users, transfers to other users, transfer to the State trust program, instream flows, etc.);
- Special requirements that may be tied to state or federal funding of water conservation measures;
- Effects of conservation measures on ground water levels; and,
- Effects of conservation measures on other water users in the basin.

Watershed Planning Units may find it valuable to review how these issues affect water conservation in the agricultural sector, in their respective WRIAs.

4.1.3 Water Conservation in the Industrial Context

Industrial water uses may occur as part of a municipal water system's service area, or may occur at a facility that has its own well or surface water source. In the industrial context, water conservation consists of a range of activities based on the size and type of industry. Because of the large volumes associated with these users, opportunities often exist to conserve significant quantities of water. On a daily basis, industrial facilities may use on the order of hundreds of thousands to millions of gallons of water. Water is used by industries for:

- Heating and cooling
- Process operations
- Washing and rinsing products
- Cleaning equipment and facilities
- Transporting materials
- Domestic and sanitary use
- Landscaping

In addition to industrial users, some WRIAs have large commercial or institutional[3] facilities, which may have similar uses.

Industries have various incentives to initiate a water conservation program, such as reducing operating costs, reducing energy consumption, reducing demand relative to the available supply or water right, or in order to take advantage of financial incentive programs offered by municipal water suppliers. Larger industries often have in-house engineering capability to conduct water audits to identify opportunities to save water. An economic analysis is made to determine capital and operating costs of any changes plus the water, energy and money saved from such changes. Typically, a payback period of 12 to 36 months is necessary in order for a company to make these changes. Most small and medium size companies lack the in-house expertise to conduct water audits and initiate changes, unless outside assistance is available. Technical assistance on conducting water audits is available from some utilities, conservation publications and the Department of Ecology.

Other important factors in determining whether conservation changes are attractive in the commercial/industrial sector include: convenience of installing and operating equipment, other demands on financial or staff

[3] Institutional facilities include schools, hospitals, military bases, prisons, etc.

resources, relationships with product vendors and company culture concerning change.

Cost of water for industries may be lower, on a per-unit basis, than residential rates. Local governments may elect to offer lower rates because of the large volumes and as an incentive to companies. However, relatively inexpensive water can be a disincentive to efficient water use.

Watershed Planning Units may find it valuable to know if any large or medium sized industrial facilities are present in their WRIA, whether they use large volumes of water, and whether they have implemented water-use efficiency measures.

4.2 Water Reuse and Use of Reclaimed Water

The Watershed Management Act (RCW 90.82) identifies water reuse and the use of reclaimed water as a potential strategy in water resource management. Water reuse makes efficient use of existing water resources, and may also ensure the availability of supplies for certain uses when new sources are increasingly difficult to find and develop. Reclaimed water can be used for many activities that do not require potable water, thereby reserving high-quality water for purposes where it is needed. Water reuse may also benefit the environment by decreasing the need for withdrawals from streams and groundwater, recharging aquifers in continuity with streams with reclaimed water, and potentially augmenting streamflows in the future.

Presented here are descriptions of the various forms of water reuse and their applications, followed by a summary of the issues that should be evaluated during the course of developing watershed plans in considering water reuse as a potential water resource strategy.

4.2.1 Types of Water Reuse

Reuse is generally defined by the water resources community as the beneficial use of reclaimed water. Reclaimed water is defined in RCW 90.46 (the Reclaimed Water Act) as "effluent derived in any part from sewage from a wastewater treatment system that has been adequately and reliably treated, so that as a result of this treatment, it is suitable for a beneficial use or controlled use that would not otherwise occur, and is no longer considered wastewater." The Reclaimed Water Act further defines this type of water reuse, which is focused primarily upon the reclamation and reuse of municipal wastewater for various uses. The two primary categories of reclaimed water application are non-potable use[4] (i.e., applications in which the reclaimed water will not be consumed) and indirect potable use, where

[4] Appendix D contains a list of various non-potable applications of reclaimed water.

highly treated reclaimed water is blended into a surface or groundwater system that is ultimately used as part of a municipal potable water supply.

In a broader sense, reuse is also frequently used to describe the second or subsequent use of water without additional treatment. This is often referred to as water recycling, where utilized water is captured and redirected back into the same system. Applications of water recycling can be found in agriculture (e.g., reuse of spent irrigation water for irrigation purposes within the same place of use) and industry (e.g., a closed-loop cooling water system).

Greywater is a term identifying wastewater that has the consistency and strength of domestic wastewater. This includes wastewater from sinks, showers, and laundry fixtures, but excludes toilet and urinal wastes. There are very specific reuse opportunities associated with greywater (e.g., utilized as toilet-flushing water within the same building in which the greywater is generated). This can only occur if the greywater is further treated to meet Class A reclaimed water standards.

Because the State's regulations have emphasized reclamation of municipal wastewater, the discussion of issues below focuses upon this type of water reuse, while acknowledging other forms that also offer opportunities in water resource planning.

4.2.2 Issues Associated with Development and Use of Reclaimed Water

There are many factors which should be considered when evaluating water reuse as a potential water resource management strategy. They include, but are not limited to, regulatory, technical, environmental, legal, financial, marketability, and public acceptance issues. Some issues tend to support the increased use of reclaimed water in water resource planning, while others complicate the implementation of water reuse.

Regulatory

The Washington State Departments of Health (DOH) and Ecology (Ecology) have prepared the State's primary regulatory document for water reuse, the "Water Reclamation and Reuse Standards" (1997). This document establishes different treatment and water quality standards (Classes A, B, C, and D) for different non-potable and indirect potable applications. As a minimum, all classes of reclaimed water must pass through oxidation and disinfection treatment processes. Class A, the most stringent category, also must be coagulated and filtered. Further description of the classes of reclaimed water, and potential applications for reclaimed water, is provided in Appendix D. DOH and Ecology issue a joint permit to the owner of a reclamation facility based upon the level of treatment and proposed applications of reclaimed water. Additional regulatory requirements for

indirect potable reuse are presented in the "Water Reclamation and Reuse Standards", and include the necessity of an environmental buffer or storage to ensure adequate mixing of reclaimed water with raw water supplies.

Technical

As discussed above, all classes of reclaimed municipal wastewater require additional treatment. Furthermore, separate storage and distribution systems are necessary to convey reclaimed water to where it will be used. These system components can be complex and costly, often posing substantial constraints to water reuse, especially when there are significant distances between treatment facilities and end users. By contrast, water recycling is typically not as costly due to the lack of treatment necessary, and the physical proximity of the water to its place of use.

Environmental

Water reuse has many potential environmental benefits. Perhaps most obvious is the reduced need for raw water withdrawals from streams and aquifers. If used as a substitute for stream withdrawals, water reuse can effectively leave more water in streams for fish needs and other environmental benefits. Reclaimed water can also be used to augment streamflows or aquifers. However, the water quality issues surrounding augmentation require detailed assessments of the potential impacts to the receiving water body. Such assessments can be costly and require substantial resources.

Another factor that may support reuse is the increasingly stringent nature of wastewater disposal requirements. Due to the general strengthening of discharge limits under the Clean Water Act and water quality concerns related to the Endangered Species Act (ESA), some municipalities may find it beneficial to redirect a portion of their treated wastewater to another use, thereby reducing pollutant loadings to streams.

Legal

The primary legal issue pertaining to water reuse is related to water rights. According to RCW 90.46.120, the owner of a wastewater treatment facility that is reclaiming water under an authorized permit from DOH and Ecology has the right to utilize that water without the need to obtain an additional water right permit. However, according to RCW 90.46.130, such water reuse operations cannot impair any existing water rights downstream from a freshwater discharge point. If a reuse project captures water previously discharged to a stream, downstream water right holders could be affected. This situation must be carefully evaluated before moving forward with a reclamation project.

Financing

The costs for producing reclaimed water are typically higher than the costs for providing water from existing and most new potable water supplies, due to the need for advanced treatment and separate distribution systems. However, with the advent of ESA and other environmental regulations, the cost of developing potable water supplies is likely to rise, possibly making the cost of reclaimed water more competitive.

There are multiple financing options available to municipalities for development of reclamation facilities. Aside from rate revenues and fees assessed to reclaimed water users, the State provides financing for water reuse projects via grants and funds available through the Centennial Clean Water, State Revolving Loan, and Public Works Trust Funds.

Marketability

For water reuse projects to be viable, there must be a demonstrated market for use of such water. Potential users must have some incentive to utilize reclaimed water, as opposed to other sources of supply. Such incentives may include a lower cost of reclaimed water as compared to developing new sources of supply, or the opportunity to address multiple problems (e.g., lack of water supply and declining streamflows) with one solution.

Public Acceptance

Historically, inadequate public education and negative public perceptions have been substantial obstacles to successful implementation of water reuse projects. Though the public is generally supportive of reuse for landscape irrigation (e.g., golf courses) and industrial applications, there has been resistance to other applications such as food crop irrigation. In order for water reuse to be a viable water resource strategy, public education efforts must be emphasized.

4.3 Voluntary Water Transfers

Voluntary transfers of water rights through purchase, lease or other arrangements offer one tool for managing water resources. Transfers of water rights can be considered either as a separate stand-alone strategy for managing water supplies; or as a set of actions that would be coupled with another strategy such as conservation or storage. For example, where water-use efficiency measures reduce consumptive uses by one user, the water conserved may be available for transfer to another user. As another example, storage facilities (both conventional reservoirs and aquifers) can be used to "bank" water to facilitate transfers. In other states, transfers in combination with each of these strategies have been applied successfully to meet various supply and environmental objectives.

Transfers of water rights do not increase the overall water supply in a river basin, since one of the basic principles for approval under state law is that there be no increase in the water right being transferred. Instead, transfers provide increased flexibility in how these water rights are put to use and can potentially produce economic and environmental gains.

4.3.1 Types of Transfers

For the purposes of this Technical Memorandum the term "transfers" can be used interchangeably with and has the same meaning as "changes."

Voluntary water transfers consist of changing the right to the use of water by willing parties, in some manner, on a permanent, temporary, or emergency basis. Transfers apply to the specific elements defined in a water right (permit, certificate, or claim), including:

- For surface water, changes in the "point of diversion," meaning the specific place where the water is taken from a stream or other source;
- For ground water, changes in the "point of withdrawal," meaning where the well is located;
- Changes in the "place of use," meaning the area defined in the water right where the water can be used;
- Changes in the "purpose of use," meaning what the water is permitted to be used for, such as irrigation, domestic supply, municipal supply, stock watering, etc.);
- Change of the "person" who holds the water right, meaning the "ownership" of the right to use the water; and,
- Changes in the time during the year that the water will be used.

Transfers may be executed for a temporary time period, such as a single growing season or a specified period of years; or on a permanent basis.

There are several different methods that can be used to change or transfer a water right. Water transfers that will be discussed in this Technical Memorandum include the following:

- Permanent or temporary transfer of place of use, point of diversion/withdrawal, and/or purpose of use, through an application for change under the procedures required by the State Water Code. Transfers may be processed either by Ecology or by a Water Conservancy Board (with oversight by Ecology). Specific discussion of surface and ground water transfers are contained in Chapters 90.03.380 and 90.44.100, respectively.

- Transfer of the use of water under water rights held by an irrigation district, from one property to another within the same irrigation district. These transfers do not require processing under the provisions of the State Water Code, but may require approval by the irrigation district's Board of Directors.
- Temporary or emergency changes in place of use, purpose of use, or point of diversion/withdrawal using expedited application for change procedures during a drought condition.
- Permanent or temporary transfer of an existing water right to a Trust Water Right, under the State's Trust Water Rights Program described at Chapter 90.38 RCW.

In 1997 the State Legislature authorized formation of Water Conservancy Boards to process applications for transfers and changes, in partnership with Ecology. Watershed planning units are specifically given the opportunity to comment on applications under consideration by a conservancy board. For more information, see Section 2.1.4.

4.3.2 Physical and Geographic Considerations

The feasibility, cost, and potential third-party impacts of transfers are strongly influenced by physical and geographic considerations. These considerations include:

Surface Water Transfers

- Whether the transfer is in the upstream or downstream direction, and the distance involved. For example, a change in the point of diversion in the downstream direction will result in water being left in the stream for a longer distance and may be less likely to cause impairment to a third party or a reduction in instream flow.
- Whether the transfer is within a single hydrologic subbasin, or involves a change in the point of diversion to a new subbasin.
- Where the return flows will enter the surface water body involved.
- Elevation and topographic considerations, which may result in a need for pumping to achieve the goals of the transfer.
- Infrastructure considerations, such as conveyance capacity (both in natural waterways and engineered canals or other structures).
- Operational constraints on releases from storage, such as those used to meet fish and wildlife objectives.
- Presence or absence of other users with senior water rights in the area where flows are affected by the transfer.

- Potential effects on ground water levels, and presence or absence of ground water users in the vicinity of the seller's place of use.

Ground Water Transfers

- State law provides that ground water transfers can only be done if the new withdrawal is from the same body of public groundwater as the original withdrawal. This is a significant constraint on the applicability of transfers involving ground water. Typically these transfers can be performed only in localized areas where geological conditions can be clearly defined and where the owner has an existing well or can install a well designed to pump from the same aquifer and not withdrawing water from multiple aquifers in vertical sequence.
- Presence or absence of other users with senior water rights in the area where ground water levels are affected by the transfer.

Some transfers will require considerable analysis to determine how these considerations apply. Where these considerations create overriding obstacles to the transfer, the transfer may prove infeasible, may require substantial costs for mitigation of undesirable impacts, or may require substantial costs for infrastructure to overcome technical problems.

4.3.3 Application to Watershed Planning Process

In most WRIAs there are many potential water rights transfers that could be performed in voluntary transactions. The nature, intent, and effects of these transfers may be highly diverse, and would depend on the specific circumstances of each one. Therefore, in developing recommended strategies for water-quantity management in a given WRIA, the Planning Unit may find it helpful to break transfers down into two very general categories:

1) Individual transfers that could be identified, defined, and proposed as one of the actions listed in the watershed plan. This would consist of one or more specific transfers involving an identified water right and designed to alleviate some particular identified problem in the basin. It would then need to be determined whether the water right holder and other potential participants in the transfer are willing to participate on a voluntary basis (in some cases a Planning Unit may also identify and recommend financial or non-financial incentives could be packaged with the transfer to make it attractive to the participants).
2) Unspecified transfers that would occur over time between the many water-rights holders in the basin. In this case, only general characteristics of the transfers could be defined, and recommendations may be made concerning which general types of transfers to encourage or fund, and what types of actions need to be taken to facilitate these types

of transfers. For example, a planning unit may determine that water-rights transfers to improve reliability of agricultural supply are a key element; or water-rights transfers that secure instream flows for fish; or other types of transfers.

As a starting point, Planning Units may find it helpful to review recent experience with transfers in their own WRIA, or statewide, to better understand the various types of transfers, the incentives to participants, and the potential effects in terms of managing water quantity.

4.4 Additional Water Allocations

Under the State Water Code, new water allocations are managed by Ecology through the water-rights application process. At the watershed level, a planning unit should evaluate whether and how it can contribute to effective decision-making on new water allocations. This could be with reference either to some specific application already before Ecology or to be submitted in the future; or in general with regard to all applications currently in "backlog" status or submitted in the future.

Anyone desiring a new water right must submit an application specifying certain information. The application is then reviewed by Ecology, and the four tests specified in Chapter 90.03.290 are applied. These are:

- The water must be available for allocation;
- The water must be put to a beneficial use;
- The use must not impair existing rights; and,
- The use must not be detrimental to the public welfare.

The January 1999 Guide to Watershed Planning and Management discusses these four tests, in the context of Phase 2, the Assessment Phase:

> "Two of these tests, availability and impairment, rely highly on technical information and analysis. Therefore, the planning unit may wish to consider how technical assessment performed at the scale of a watershed can improve the application of these tests within the management area. For example, technical assessment (including review of water rights data as well as information related to physical sciences) can help address the question of water availability. In cases where minimum instream flows have been established (or will be established through the planning process), technical assessment could be designed to address key aspects of impairment of those flows, on a sub-basin or watershed basis. On the other hand, it is unlikely that technical assessment performed at a watershed scale will provide useful information with respect to site-specific impairment of individual water rights for out-of-stream purposes…."

The remaining two tests, beneficial use and evaluation of potential detriment to the public welfare, are less susceptible to technical analysis. Beneficial uses are defined in various places in state law and associated court cases, and include a wide variety

of uses. Therefore, a planning unit can probably contribute little in regards to this test. The public welfare, on the other hand, is not specifically defined in Washington water law. One task a planning unit might wish to consider is the development of a statement on the public welfare as applicable to water allocation in their particular WRIA, or development of a set of principles that might serve as guidance in defining the public welfare. This could then serve as one piece of information to be considered by Ecology in considering water rights applications.

In some cases, a planning unit may wish to consider as a potential item in the watershed plan, a recommendation on a specific permit application that is of particular significance to water-resource management in their watershed plan.

4.5 Water Storage

Many WRIAs around the state have existing water storage projects, built by local, regional or federal entities. These storage projects serve various purposes, including hydroelectric power generation, flood control, agricultural water supply, and municipal water supply. In some basins, additional storage projects have been proposed and information may be available regarding cost, benefits, and technical feasibility. New projects can be configured to deliver different types of benefits, or to serve multiple purposes.

As described in Section 2, a statewide Water Storage Task Force completed a Report to the Legislature in 2001. The findings of that report have been summarized in Section 2. The report identifies four categories of storage enhancements, including:

- New on-channel dams;
- New off-channel dams;
- Raise existing dams; and,
- Aquifer storage and recovery.

These categories may be used to organize review of storage options within a given WRIA, as part of the watershed planning process.

It is recommended that Planning Units assemble existing information regarding both existing storage projects in their WRIA, and proposals that have previously been advanced for new storage projects. This can help identify particular sites within a WRIA that offer promise for storage enhancements. Staff at agencies such as Ecology, the Bureau of Reclamation, the U.S. Army Corps of Engineers, irrigation districts, and public water systems can help provide background information on existing storage projects or projects that have been proposed in the past but have not been constructed.

In order to explore storage options at the planning level, it is also important to define factors such as:

- The quantity of water desired (or various options involving differing quantities);
- The potential benefits of different storage approaches;
- The potential environmental impacts (and benefits) of different storage approaches;
- Technical feasibility, at the "reconnaissance" level or through more detailed studies;
- Potential sites for new or enhanced storage facilities;
- The relationship between the storage strategy and other strategies such as water conservation and transfers. (In some cases, storage plays a role in conservation or transfer strategies, by providing a place to "bank" water. In other cases, storage may be an alternative to other approaches.);
- Potential entities that would finance, own and operate a storage facility; and,
- Implementation issues that would need to be addressed for a particular storage project (e.g., legislation; permitting; water rights; land acquisition; etc.).

Storage projects are typically complex from the standpoint of site needs, engineering considerations, benefits analysis, permitting and financing. Therefore, Planning Units will need to identify appropriate technical staff that can assist in developing and reviewing options applicable within a particular WRIA. In many cases, a planning unit may find that it can complete a general review of storage as a strategy for its WRIA, but must then identify a particular project proponent (e.g., a city, an irrigation district, or a federal agency) to fund and carry out more detailed studies of leading toward specific decisions on storage options.

Example of One Planning Unit's Approach to Reviewing Water Quantity Strategies

One planning unit has used the following approach to reviewing the strategies for managing water quantity, as identified in Chapter 90.82.070 RCW.

1. A concise statement of specific planning unit objectives was defined, to use during the Planning Phase. These objectives were initiated through a brainstorming workshop involving the entire Planning Unit, and then refined by a committee specifically assigned to this task. Out of 11 objectives, five are related specifically to water quantity. These are:
   - ❑ Improve the reliability of surface water supply for irrigation use.
   - ❑ Provide for growth in municipal, rural domestic, and industrial demand;
   - ❑ Improve instream flows for all uses with emphasis on improving fish habitat;
   - ❑ Protect, improve and sustain ground water quantity and pumping levels of aquifers for the benefit of current and future use; and,
   - ❑ Maintain economic prosperity by providing an adequate water supply for all uses.

2. Several work groups were organized during the Planning Phase, with each objective assigned to one work group. Most of the objectives above were assigned to a work group on Water Supply and Management, with consultation with other work groups addressing habitat needs and water quality considerations.

3. The various groups worked with a consulting team to define a detailed scope to address each objective. Representatives of the work groups also met jointly with the project steering committee to address areas of overlap and to define budget priorities for the planning phase. Through this process, tasks were defined to address strategies covering each objective, such as conservation, transfers, storage etc.

4. For each strategy, a technical memorandum was developed, to cover topics such as:
   - ❑ Basic definition of the strategy, and its different aspects;
   - ❑ Examples of the strategy's use in the local WRIA, in Washington State or in other western states;
   - ❑ Discussion of how the strategy could be applied to managing water resources in that particular WRIA;
   - ❑ Review of related laws and policy issues;
   - ❑ A qualitative comparison of costs and benefits, in comparison with the other strategies being reviewed; and,
   - ❑ Development of a matrix showing how the strategy relates to all of the objectives listed above, as well as feasibility and implementation criteria.

5. As of the date of preparation of this Addendum document, the Planning Unit is still developing these technical memoranda. These materials will then be used in writing the Watershed Plan document and selecting specific strategies and actions for inclusion in the Plan. Where needed, more in-depth analysis may be carried out to supplement the technical memoranda.

Section 5
Description of Ongoing Watershed Planning Efforts

As of Fall 2001, 30 watershed Planning Units had formed to develop watershed plans under the Watershed Management Act (WMA). This chapter summarizes information for each of these planning units. It is suggested that planning units review this information with the aim of identifying potential contacts at other planning units that may be addressing similar issues or encountering similar obstacles in the process of developing a watershed plan.

For each watershed planning process underway, this section describes the following:

- Lead Agency
- Amount of grant
- Optional elements: Quality, Habitat, Instream Flow
- Status
- Initiating Governments
- Water resource interests on the Planning Unit
- Organizational structure
- Staffing and use of outside service providers
- Linkages to other planning efforts
- Status/progress/products key accomplishments
- Key issues
- Primary challenges to successful watershed planning

It should be recognized that the information provided below will rapidly become dated. The Department of Ecology (Ecology) maintains the following Web site that provides updated information on planning units around the state:

http://www.ecy.wa.gov/watershed/index.html

This Web site can be used to identify contacts at each Planning Unit, if followup information is desired. In addition, many planning units have established their own Web sites to track status and disseminate information. These sites can be accessed through the Ecology web site listed above.

5.1 Nooksack - WRIA 1

Lead Agency: Whatcom County
Amount of Grant: $475,000
Optional Elements: Quality, Flows, Habitat
Status: Phase 2 & Phase 3

Initiating Governments: Whatcom County, City of Bellingham, PUD #1 of Whatcom County, Lummi Nation, Nooksack Tribe.

Water Resource Interests on the Planning Unit: Governments include Whatcom County, the PUD, Bellingham, Lummi Nation, Nooksack Tribe, State of Washington (Ecology lead), and the Federal Government (Jon vander Hayden, USFS, lead), the Port of Bellingham, Small Cities (e.g. Lynden, Ferndale, Blaine, Sumas, Everson, etc.), and the Diking and Drainage Districts. Non-governmental participants include fishers, forestry, non-municipal water systems, agriculture, environmental, land development, private well owners, and small water systems.

Status/Progress/Products

Utah State University (USU) was retained to conduct the watershed assessment. They have submitted drafts of a number of technical assessment documents and the planning unit and technical team members (see Organizational discussion, below) are reviewing the documents and compiling the comments for submittal to USU. In general, the documents relate to surface and ground water quantity and quality, instream flows, and fish habitat. Most of the documents on water quantity are aimed as satisfying the requirements of Chapter 90.82 RCW regarding the determination of water budget elements. The draft documents are quite voluminous and were transmitted on 2 compact discs.

Utah State University is developing a Decision Support System (DSS) which is a computer program that will integrate ground and surface water components of the watershed plan and will allow assessment of various water management scenarios. Members of the Planning Unit have submitted worksheets for use by USU in developing the DSS which will be refined as the project progresses.

Phase 1 of the water rights analysis is complete. This consisted of a review of all Ecology water right records and a tentative evaluation of which water rights represent active uses and which do not on the basis of the County's assessor records. Phase 2 is underway and includes face-to-face meeting with water right holders to provide them with a copy of their water right records and to educate them about water rights, relinquishment, claims, etc.

Considerable progress is being made on the instream flow component. Both last year and this year, USU field crews have been in the watershed conducting

instream flow work which consists of collecting stream flow data along with other information related to elements such as fish utilization, habitat characterization, water quality, etc. USU is conducting both intensive site studies (consisting of a rigorous IFIM approach) and is testing a Rapid Assessment Method which might prove useful in this an other watersheds if it appears that results of this new method are consistent with the results of the more rigorous methods. The selection of sites has been coordinated with the various technical teams that are described under Organization, below.

At the start of the effort, USU conducted a workshop in the basin to which instream flow experts from around the country and Canada were invited to discuss the various alternative methods of establishing instream flows. Dr. Thomas Hardy of USU chaired the workshop and prepared a report summarizing the event. A follow-up workshop is anticipated for early 2002. Unlike the first workshop which focused on the various technical assessment methods and the advantages and disadvantages of each, this workshop will focus on how instream flows might be set on the basis of the technical studies so it will focus more on policy and implementation. Plans are being formulated, but it is anticipated that a group of experts on the establishment of instream flows will be invited to participate.

Primary Accomplishments to Date

- Completion of Instream Flow Workshop and delivery of summary report from USU outlining agreed-upon approaches for instream flow data collection efforts;
- Delivery of draft technical assessment reports from USU;
- Agreement on the delineation of drainages within WRIA #1 for planning purposes;
- Continued involvement of both the Lummi Nation and the Nooksack Tribe;
- Planning Unit approval of the public involvement and education plan;
- Significant progress on the assessment of water rights in WRIA #1;
- Preparation of Decision Support System worksheets by virtually all of the water resource interests represented on the Planning Unit to serve as the basis for the identification of water-resource related problems/issues and the development of proposed management solutions

Organizational Structure

In WRIA 1, much of the structure is driven by the need to preserve a government-to-government relationship with the Lummi Nation and the Nooksack Tribe.

Joint Board - in order to retain a government-to-government relationship, the Initiating Governments created a Joint Board which consists of the policy makers for each of the Initiating Governments. Specifically, this includes the County

Executive, the Mayor of Bellingham, the PUD manager, and policy representatives from the Lummi Nation's Natural Resources Department and the Nooksack Tribe's Natural Resources Department.

Planning Unit - The planning unit consists of caucuses representing a broad range of interests. The Lummi Nation attends Planning Unit meetings but does not participate as a Planning Unit member because they do not view it as a government-to-government forum. The Nooksack Tribe does not participate in the Planning Unit meetings for the same reason.

Initiating Governments Staff Team - This team meets weekly and consists of key staff from the initiating governments as well as the state caucus and the federal government caucus. This Team created several technical teams in the areas of Water Quantity, Water Quality, Instream Flow, and Fish Habitat as well as teams for Public Involvement and Education, Database Management, Delineation of Drainage Boundaries for use in the planning process. Currently, there is also a team working on the selection of a consultant team to assist in development of the draft watershed plan, the EIS, conducting socio-economic analyses of water management options, and assistance with public involvement and education and a team that is developing a list or catalog of potential management options for further consideration by everyone involved in the process. Planning Unit members are invited to participate in the technical teams and a number of them have elected to do so.

Staffing and Use of Outside Service Providers

The Initiating Governments are making significant contributions in terms of staff and funding to the watershed project in WRIA #1. Whatcom County "rededicated" its County-wide flood fee to fund the watershed project.

Utah State University (USU) was retained to conduct the technical assessment work for the water quantity, quality, instream flow, and habitat assessment elements of the project. Whatcom County PUD staff are conducting the water rights analysis. The consultant selection process is underway to retain a consultant team to develop the watershed management plan, draft the environmental impact statement, conduct socio-economic evaluations of proposed water management options, and assist in public involvement and education.

Key Issues

Instream flows (will likely include consideration of tribal water rights by the Lummi Nation), hydraulic continuity (surface water/ground water relationships, water budget/availability of water for new water uses, water quality (including Lake Whatcom), and fish habitat maintenance and restoration.

Linkage to Related Planning Activities

Salmon Recovery Activities - The overall approach is for the watershed planning project to make use of the work of the various salmon recovery activities to the extent possible. To that end, many of the staff involved in the watershed project are also involved in salmon recovery work. Examples include tribal policy staff that represent their interests as co-managers of the fishery resource along with the Washington State Department of Fish and Wildlife, State and County staff involved in the limiting factors analysis being conducted by the Washington Conservation Commission; and participation in the efforts of the Salmon Recovery Funding Board.

Local Land Use Planning Activities - This linkage has been identified as a need by several participants via their DSS worksheets, but the nature and extent of the linkage has not yet been determined.

5.2 San Juan - WRIA 2

Lead Agency: San Juan Health
Amount of Grant: $290,206
Optional Elements: Quality, Habitat
Status: Phase 2
Initiating Governments: San Juan County, Town of Friday Harbor

Water Resource Interests on the Planning Unit: San Juan County, Town of Friday Harbor, Roche Harbor and Eastsound Water Users, representative from the Citizen's Water Advisory Committee, an environmental scientist, a marine biologist, manager of commercial shellfish operation, two local farmers, two small public water system managers, member of the Eastsound sewer district, two members from the drilling industry, and Department of Ecology. There are no formal caucuses recognized in the Planning Unit.

Organizational Structure

The San Juan County Department of Health and Community Services is the lead agency and provides technical and administrative coordination of the grant.

Staffing and Use of Outside Service Providers

No staff has been hired; all technical and project management tasks have been accomplished by contracted services

Linkages to Other Planning Efforts

The planning unit evolved out of the nonpoint watershed planning committee so there is carry over of water quality among the members. Marine affairs issues are

closely related to the previous water quality work and current watershed planning. Future water system needs address growth management projections.

Key Accomplishments

Consultant Team has been engaged in Phase 2, Level 1 assessment. Draft Assessments are being reviewed and approved by Planning Unit. Phase 3 activities have begun and several early action items are pending. Goals for 2002: a public involvement strategy, approve Level 1 assessment reports, identify potential Level 2 assessments, and identify early implementation goals. There are no instream flows currently proposed for WRIA 2.

Key Issues

Key issues for WRIA 2 are water availability and coordination with growth management.

Primary Challenges to Successful Watershed Planning

None identified.

5.3 Lower/Upper Skagit - WRIA 3/4

Lead Agency: Skagit Council of Governments
Amount of Grant: $925,000
Optional Elements: Flows
Status: Phase 2 & Phase 3

Initiating Governments: Skagit PUD, Anacortes, Skagit County, Swinomish Tribe, Mount Vernon

Water Resource Interests on the Planning Unit: Skagit PUD, Anacortes, Skagit County, Swinomish Tribe, Federal Government, Agriculture, Recreation, Environmental, Economic, Commercial Fishing, Unaffiliated Watershed Representative, and Department of Ecology. The non-governmental entities on the Planning Unit represent formally recognized caucuses.

Status/Progress/Products

A Watershed Plan for WRIA 3 and 4 is being accomplished in several steps. A detailed, thorough and comprehensive plan for the Samish Watershed, a major subbasin of WRIA 3 with significant fish, instream flow, and water management issues, is moving into Plan Development (Phase 3). The Initiating Governments and Planning Unit believed that it was essential that a successful plan be completed for the Samish before moving on to the rest of WRIA 3 and 4.

Organizational Structure

The Skagit County Council of Governments is the grant recipient and administrator. The Technical Team, comprised of specialists in surface water, ground water, water rights, instream flow, and data management are completing critical data acquisition for the Samish Plan.

Staffing and Use of Outside Service Providers

No staff has been hired for watershed planning; all technical and management work has been accomplished by contracted services.

Linkages to Other Planning Efforts

In a coordinated effort, the Skagit PUD has been implementing portions of the Coordinated Water System Plan to assure that regional water supply is available in the Samish basin to meet existing and future needs.

Key Accomplishments

Level 2 data collection has been completed and the initial Phase 3 analysis has been scheduled. Specific accomplishments:

Ground Water – Consultants have completed the original scope of work for the groundwater assessment. Additional studies were approved that will have enhanced results. A ground water model (more sophisticated than water balance) was developed to evaluate ground water/surface water interactions and aquifer yield. Information to develop the model was obtained from both the well surveys and a recent (2001) DNR groundwater report on the Bow and Alger Quadrangles.

Hydrology – The continuous hydrologic model (HSPF) was built to develop natural stream flows and predict changes based on current and future water use. This was a step above the Stella model that had been proposed and was completed within budget. The analysis was made possible by contracting with noted hydrologist, Norm Crawford, who recently developed a model in a nearby watershed and already had much of the input data in a useable electronic form.

Water Use and Water Rights – Estimates of residential water use were developed primarily on population. Exempt well use was incorporated into the water rights scenario. New population figures were compared to the 1990 census projections to check accuracy of population projections. A summary of potential irrigated acreage has been conducted from the 2000 agricultural survey.

Instream Flows – In additional to an IFIM report, two additional aspects that address stream segments that agency biologists requested were completed. The first area is the large and unique wetland complex in the Upper Samish River. A

temporary stream gage was installed and cross section data from the wetland shows the effect of streamflow on available habitat. Secondly, field measurements, analysis and a report using the "toe-width" method (USGS, 1975) were employed for 19 small streams that were not addressed by the IFIM study. This study will enable instream flow needs to be addressed on may of the small fish bearing streams in the Samish Basin within the original IFIM budget. Future instream flows will address the Nookachamps subbasin and other tributaries in WRIAs 3 & 4. It is noteworthy that Ecology completed and adopted an instream flow rule for the Lower and Upper Skagit (WRIAs 3 & 4) based on studies begun in 1996 and funded by the city of Anacortes and the Skagit PUD. Other federally-mandated flows are currently in place for Seattle City Light's Skagit Project in WRIA 4 and are being re-negotiated through relicensing of the Puget Sound Energy hydroelectric project on the Baker River.

Data Management – Ground water and data management tasks have been completed. GeoEngineers will provide the maps in the .odb format as a template and all analysts will have the same format. Both landscape and portrait templates will be provided.

Project Management – All technical work has proceeded as planned. Projects that were added to the original scope have increased the ability of the planning team to make decisions. Additional costs for the studies were made up by economies in the technical analysis and reducing facilitation and project management costs.

Watershed Plan Development and Phase III – Alternative implementation plan development will begin in September 2001. Negotiations will continue until resolution of planning issues and a recommendation for adoption can be forwarded to the Skagit County Board of Commissioners.

Key Issues

There is an anticipation that limited surface or ground water will be found to be available in the Samish to meet future needs.

Primary Challenges to Successful Watershed Planning

None identified.

5.4 Island – WRIA 6

Lead Agency: Island County Health Department
Amount of Grant: $197,736
Optional Elements: none
Status: Phase 2
Initiating Governments: Island County, City of Langely, City of Oak Harbor

Water Resource Interests on the Planning Unit: County-formed Citizen Advisory Group, Cities of Coupeville, Langely, and Oak Harbor, Island County, and the state represented by the Department of Ecology.

Organizational Structure

A subcommittee to the Citizen Advisory Group is doing most of the watershed assessment and planning work.

Staffing and Use of Outside Service Providers

Island County has hired a technical staff person and will hire planning staff to complete the watershed plan.

Linkages to Other Planning Efforts

The Citizen Advisory Committee is also responsible for the salmon recovery work under the Salmon Recovery Act (2496).

Status/Progress/Products Key Accomplishments

Completed a set of Early Action Recommendations for water management while the watershed plan is being developed. Phase 2 assessment underway with newly hired county staff conducting the field-work portion of the assessment. Phase 3 application submitted to Ecology for approval.

Key Issues

How to address seawater intrusion through watershed planning.

Primary Obstacles to Successful Watershed Planning

No specific obstacles identified at this time.

5.5 Snohomish – WRIA 7

Lead Agency: Tulalip Tribes and City of Everett
Amount of Grant: $50,000
Optional Elements: still determining how to start phase 1

Initiating Governments: City of Everett, Tulalip Tribes, Snohomish County, King County, Alderwood Water District.

Primary Challenges to Successful Watershed Planning

The lead agencies have reapplied for a Phase 1 organizing grant. Earlier discussions among the initiating governments lead to some general terms for organizing and a draft Memorandum of Agreement.

5.6 Nisqually - WRIA 11

Lead Agency: Nisqually Tribe
Amount of Grant: $250,000
Optional Elements: Quality, Habitat, Flows
Status: Phase 2

Initiating Governments: Nisqually Indian Nation, Thurston County, Lewis County, Pierce County, City of Yelm, City of Olympia, Ashford Water District

Water Resource Interests on the Planning Unit: Nisqually Indian Tribe**,** Pierce, Thurston County, Lewis County, Yelm, Eatonville, Olympia, Lacey, Elbe Water District, Department of Ecology and Department of Fish and Wildlife.

Organizational Structure

The Nisqually Planning Unit operates under the umbrella of the Nisqually River Council and the Nisqually River Management Program.

Staffing and Use of Outside Service Providers

The Nisqually is utilizing a consultant for most of the Phase II work.

Linkages to other Planning Efforts

- Integrated with salmon recovery planning
- Local land use planning will likely come into play further in the planning process. Thus far it has been peripheral.
- Utility system planning – water system planning involving Olympia and Lacey has been part of the watershed planning effort with respect to expansion of the McAllister well field, which is in the Nisqually watershed. These two cities happen to be in the Deschutes watershed. It is anticipated that the Lacey, Olympia, Tumwater Treatment facility (LOTT) will become increasingly a topic of discussion as we address the subject of water conservation and reuse.
- Storm water planning – this topic has not been fully developed, but is anticipated to be before the end of the planning process.

Key Accomplishments Status/Progress/Products

The Nisqually has its draft Phase II assessment out for review as of late August.

Key Issues

Key water resource issues for the Nisqually are expansion of city well fields serving Olympia and Lacey in the McAllister area; meeting growth needs in Yelm and to a lesser degree in Eatonville; instream flows in prairie streams that are normally intermittent, but run the risk of even less flows as development competes for water (Chum salmon that use these streams could be adversely affected.).

Primary Challenges to Successful Watershed Planning

There are no obvious obstacles to successful watershed planning in the Nisqually Watershed.

5.7 Chambers-Clover - WRIA 12

Lead Agency: Tacoma-Pierce Health
Amount of Grant: $455,000
Optional Elements: Quality, Habitat
Status: Phase 2 & 3

Initiating Governments: Lakewood Water District, City of Tacoma, Pierce County, Puyallup Tribe

Water Resource Interests on the Planning Unit: Lakewood Water District, City of Lakewood, Cascade Land Conservancy, Fort Lewis Public Works, Washington Well Drillers Association, Tacoma-Pierce Chamber of Commerce, PALS, Advance Planning, City of Tacoma -Water Division, Tahoma Audubon Society, McChord Air Force Base, Citizens for a Healthy Bay, Citizen Representative, Lake Steilacoom Improvement Club, Tacoma-Pierce County Health Dept., Regional Water Association, Drainage District #19, Puyallup Tribe of Indians, Pierce County, City of University Place, Clover Creek Council, The Boeing Company and the, Department of Ecology

Organizational Structure

The current structure for the WRIA 12 watershed planning process involves a planning unit that was established by the initiating governments. (The IGs are part of the planning unit.) The PU membership is diverse and represents a wide range of interests in the watershed, including local, county, state, and federal government, the Puyallup Indian Tribe, business, water purveyors, environmental, and community groups, and interested citizens.

The PU is governed by a set of groundrules that describe the purpose, membership, spokesperson, responsibilities, committees, meeting structure, decision making, and record keeping.

A scope of work outlines the process the planning unit is undertaking, with consultant assistance, to develop the plan. Supporting the structure of the organization is a grant agreement between the Tacoma/Pierce County Health Department and the Washington State Department of Ecology to fund the process and contracts with consultants to provide a variety of essential services such as meeting facilitation and research work.

Ecology's watershed web page contains or will contain in the immediate future copies of much of this information, along with some products to date, such as the bibliography.

Staffing and Use of Outside Service Providers

This planning process is staffed by Ray Hanowell, Tacoma/Pierce County Health Department, in conjunction with other duties. Ray is charging about .2 to .4 FTE to the funds available for this project. Consultants provide meeting facilitation. Consultants are also accomplishing the majority of the Phase II work

Linkages to Other Planning Efforts

An extensive effort has been made, and continues, to identify bibliographic material relevant to this project. Summaries of the products of other applicable planning efforts will be produced by the consultants as part of their Phase II work. The PU intends to review the other planning efforts through this venue and to incorporate, harmonize, and extend their work with this knowledge in hand.

Key Accomplishments Status/Progress/Products

Consultants have been hired, the planning unit has refined the scope of work, and phase II work is beginning. A decision on requests for any supplemental or additional funding has not yet been made. Informational/educational presentations to the planning unit are beginning. The planning unit is not going to address instream flows at this time; however, they are going to consider addressing instream flows again before the end of 2001. Unless the Puyallup Indian Tribe changes their position, instream flows will (continue to) not be addressed in this planning process.

Key Issues

This watershed, while among the smallest in the State, is one of the most intensively developed, with lots of impervious surface. The watershed looks and functions very differently than it did 200 years ago. A key issue will be to what

extent, and how, will changes be made to provide for the most harmonious relationship between human development and the natural functions of the environment. The watershed is currently closed to further surface and related ground water appropriation. Can water be found to augment low or no flows in the creeks and streams of the watershed? Is there any water that might be available at any time for out of stream use? How can new growth be accommodated? What changes may be needed to clean and moderate stormwater flows? What projects can be undertaken to enhance the use of the watershed by salmonids?

Primary Challenges to Successful Watershed Planning

The obvious difficulties will be faced by this watershed planning process, including resolution of disparate views and values, the identification and application of sufficient political will to adopt and support changes from the existing status quo, adequate funding to conduct full and complete instream flow studies (should this option be selected), inability to learn from the past, and lack of foresight or ability to think of new and more effective ways of moving forward.

5.8 Deschutes - WRIA 13

Lead Agency: Thurston County
Amount of Grant: $455,000
Optional Elements: Quality, Habitat, Instream Flows (under consideration)
Status: Phase 2 & Phase 3

Initiating Governments: Thurston County, City of Olympia, Thurston PUD #1, (Note: Lewis County opted in writing to not participate due to small and remote WRIA 13 area within County. In addition, the initiating governments elected to use a more expansive view of who should be involved in initiating the planning process, and therefore included several additional agencies, including the Squaxin Island Tribe, Cities of Tumwater, Lacey and Rainier, Thurston Conservation Commission and Department of Ecology).

Water Resource Interests on the Planning Unit: Thurston County, City of Olympia, City of Tumwater, City of Lacey, Thurston PUD No. 1, Squaxin Island Tribe, Agriculture (Thurston Co. Cattlemen's Association), Aquaculture (Taylor Shellfish), Forestry Industrial (Weyerhaeuser), Development (Olympia Master Builders), Industry: Major water user (Miller Brewery), Business (Lacey/Thurston County Chamber of Commerce), Realtors, Water supplier: Nongovernmental (Washington Water Service Co.), Fisheries (Trout Unlimited), Environmental Group (Sierra Club), Henderson Watershed Council, Eld Watershed Council, Deschutes watershed resident, Town of Rainier, Thurston Conservation Commission, Department of Ecology.

Organizational Structure

The Deschutes relies extensively on a technical subcommittee.

Staffing and Use of Outside Service Providers

Deschutes is doing most of the work in-house with County staff.

Linkages to Other Planning Efforts

- Integrated with salmon recovery planning
- Local land use planning will likely come into play further in the planning process. Thus far it has been peripheral.
- Utility system planning – water system planning involving Olympia and Lacey has been part of the watershed planning effort with respect to expansion of the McAllister well field, which is in the Nisqually watershed. These two cities happen to be in the Deschutes watershed. The regional sewer utility, the LOTT Alliance, is siting four regional wastewater reuse plants and has invested in effective water conservation and reuse programs.
- Storm water planning – this topic has not been fully addressed in either of the sheds, but is anticipated to be before the end of the planning process.

Status/Progress/Products and/or Key Accomplishments

The Deschutes will have its draft assessment out later this fall. "Level 2" work is underway to map water rights at the parcel level; field survey the Deschutes to identify groundwater input; and test the utility of the Thurston County USGS regional groundwater model in addressing locally-important issues such as groundwater-surface water interaction. A draft Initial Assessment of the Henderson Inlet Watershed has been issued, to supplement the 1995 DOE WRIA 13 Initial Assessment. The Deschutes has produced several summary technical reports that will feed into the draft assessment.

Key Issues

Key water resource issues for the Deschutes are setting of target instream flows; exempt wells; adequate future community water supplies and habitat protection, especially on urban streams.

Primary Challenges to Successful Watershed Planning

Better delineation of "continuity" between groundwater and surface water bodies closed to additional consumptive appropriation; inclusion of "exempt" wells in water resource management; coordination with emerging regional wastewater reuse program.

5.9 Kennedy/Goldsborough - WRIA 14

Lead Agency: Mason County
Amount of Grant: $45,000
Optional Elements: Quality, Habitat, Flows
Status: Just applied for Phase 2 funding

Initiating Governments: City of Shelton, PUD #1, Thurston County, Mason County, Grays Harbor County, Squaxin Island Tribe

Water Resource Interests on the Planning Unit: Mason County, City of Shelton, Squaxin Tribe, PUD #1, Thurston County, Grays Harbor County, Water Purveyors, Salmon Recovery/Allyn Salmon Enhancement Group, Shellfish Industry/Taylor Shellfish, Citizen-at-Large/City of Shelton, Citizen-at-Large/Mason County, Citizen-at-Large/Thurston County, Environmental/South Sound Watershed Council, Timber/Simpson Timber Company, Department of Ecology.

Organizational Structure

Mason County, Department of Community Development is the lead agency. The Planning Unit is comprised of the Initiating Governments, and individuals representing citizens, shellfish, timber, water purveyors, local watershed council, local salmon enhancement groups, and the ports. Still trying to get representation from the agricultural, development and business communities. The current approach is to not have a separate Steering Committee, and a Technical Committee has yet to be formed

Staffing and Use of Outside Service Providers

Approximately 0.5 FTE being funded to Mason County. Currently issuing an RFP to secure consultant services to facilitate the overall process and Level 1 Technical Assessment.

Linkages to Other Planning Efforts

Mason CD, lead on 2496 planning is a member of the Planning Unit, and will be on the Technical Committee. Since Mason County Department of Community Planning is the lead agency, county level planning is represented as well.

Key Accomplishments Status/Progress/Products

The Planning Unit is formed and meeting regularly. They are initiating a process to collect basic, existing watershed information. They have applied for Phase 2 money.

They have developed and adopted Interagency Agreement and Operating Procedures.

Key Issues

There has concern expressed about the numbers of exempt wells and their cumulative impacts (particularly in areas where there are ESA issues). Running a separate track is the issue of supplying water and sewage service to the State Patrol and Corrections facility near Shelton.

Primary Challenges to Successful Watershed Planning

WRIA 14 boundary (very small portion which drains into Hood Canal) must be included in the WRIA 14 plan. Negotiations will probably occur between WRIAs 14 and 16 to have WRIA 16 serve as a contractor to address the issues in that small area.

5.10 Kitsap – WRIA 15

Lead Agency: Kitsap County
Amount of Grant: $145,020
Optional Elements: Quality, Habitat, Flows
Status: Phase 2

Initiating Governments: Kitsap County, King County, Pierce County, Mason County, City of Bremerton, Silverdale Water District, Invited Tribes: Port Gamble S'Klallam Tribe, Suquamish Tribe, Skokomish Tribe, Squaxin Island Tribe.

Water Resource Interests on the Planning Unit: The counties of Kitsap, Mason, and Pierce; the cities of Bainbridge Island, Bremerton, Gig Harbor, Port Orchard, and Poulsbo; the Indian tribes of Port Gamble S'Klallam, Skokomish, Squaxin Island, and Suquamish; and the water purveyors of Annapolis, North Perry, and Silverdale water districts as well as Kitsap PUD #1. The State of Washington as represented by the Department of Ecology. Timber/Agriculture, Business, Fisheries (sport and shellfish), Recreational, Environmental, and Property Owners Caucuses. Non-voting Federal Agencies

Organizational Structure

The Planning Unit is the primary decision making body. A steering committee provides direction and recommendations. Other committees are anticipated as needed.

Staffing and Use of Outside Service Providers

Consultants selected to provide meeting facilitation and perform an assessment of existing information on the WRIA

Linkages to Other Planning Efforts

No formal linkages at this time. However, many of the Planning Unit Members are involved in the other planning efforts (i.e. salmon recovery, non-point pollution, coordinated water system planning)

Key Accomplishments Status/Progress/Products

Planning unit formed under a Memorandum of Understanding among the initiating governments. Phase 2 initiated.

Key Issues

Clarification of planning goals. Determining how and where to focus the planning effort. Role of King County and Vashon Island in the planning effort.

Primary Challenges to Successful Watershed Planning

No specific obstacles identified as of yet

5.11 WRIA 16 - Skokomish/Dosewallips

Lead Agency: Mason County
Amount of Grant: $50,000
Optional Elements: Quality, Habitat, Flows
Status: Just applied for Phase 2

Initiating Governments: Jefferson County, Mason County, Grays Harbor County, PUD #1, Skokomish Tribe

Water Resource Interests on the Planning Unit:

Organizational Structure

Mason County, Department of Community Development is the lead agency. The Planning Unit is comprised of the Initiating Governments, and individuals representing citizens, shellfish, timber, lakes, flood board, local watershed councils, local salmon enhancement groups, the Hood Canal Coordinating Council, and the ports. Still trying to get representation from the agricultural, development and business communities. The current approach is to use the established Steering Committee to develop Planning Unit agendas and make policy recommendations, and a Technical Committee to work the technical issues and develop

recommendations to the Planning Unit. The Steering Committee is comprised of the Initiating Governments and a state government (Ecology) representative.

Staffing and Use of Outside Service Providers

Approximately 0.5 FTE being funded to Mason County. Currently issuing an RFP to secure consultant services to facilitate the Level 1 Technical Assessment.

Linkages to Other Planning Efforts

The Hood Canal Coordinating Council (lead entity for 2496) and local salmon enhancement groups are members of the Planning Unit, and are invited to participate on the Technical Committee. Since Mason County Department of Community Planning is the lead agency, county level planning is represented as well. Likewise Jefferson County PUD and Jefferson County Health are represented.

Key Accomplishments Status/Progress/Products

The Planning Unit, Steering Committee and Technical Committee are formed and meeting regularly. Initiating collection of basic, existing watershed information. Applied for Phase 2 money. They have developed and adopted Interagency Agreement and Operating Procedures.

Key issues

Very large WRIA with several large drainage's. The issue of the impacts of the Cushman Dam to the flows of the North Fork of the Skokomish is the greatest single issue. As this is being dealt with in a Federal venue, this issue is not "on the table" for the Planning Unit. Flooding in a number of sub-basins, and the development foreseen in the northern areas of the WRIA are important considerations.

Primary Challenges to Successful Watershed Planning

As noted above, the final plan may not address a significant portion of the largest river in the WRIA (Skokomish).

5.12 Quilcene/Snow - WRIA 17

Lead Agency: Jefferson County, Department of Environmental Health
Amount of Grant: $475,000
Optional Elements: Quality, Habitat, Flows
Status: Phase 2 and Phase 3

Initiating Governments: Jefferson County, Clallam County, City of Port Townsend, Port Gamble S'Klallam Tribe, Jamestown S'Klallam Tribe

Water Resource Interests on the Planning Unit: Point No Point Treaty Council, Port Gamble S'Klallam Tribe, Skokomish Tribe, Jefferson County, Port Townsend, Jefferson County PUD, Trout Unlimited, Wild Olympic Salmon, Jefferson Water Utility Coordinating Council, Jefferson County Conservation District, Marrowstone Island Groundwater, Port Townsend Paper Mill, Clallam County, Jamestown S'Klallam Tribe, Department of Ecology and Department of Fish and Wildlife.

Organizational Structure

Jefferson County, Department of Environmental Health is the lead agency. The Planning Unit is comprised of the Initiating Governments, and individuals representing citizens, Jefferson Conservation District, Paper Industry, Wild Olympic Salmon, Trout Unlimited, local environmental councils, local salmon enhancement groups and the grange. The organizational approach is to use the established Steering Committee to develop Planning Unit agendas and make policy recommendations, and a Technical Committee to work the technical issues and develop recommendations to the Planning Unit. The Steering Committee is comprised of the Initiating Governments, state representative (Ecology) and a representative from the non-governmental caucus.

Staffing and Use of Outside Service Providers

Small amount of "administrative" funds going to the lead Agency. "Facilitation" services were purchased during start-up. Also contracted for the completion of the Level 1 Technical Assessment. Just prior to the development of the RFP for the Level 1 Technical Assessment (and continuing now) contracting with a technical project manager to coordinate the efforts of the Technical Committee and outside technical consultants.

Linkages to Other Planning Efforts

The Hood Canal Coordinating Council (lead entity for 2496) and local salmon enhancement groups are invited to participate on the Technical Committee. Since the Jefferson County Department of Environmental Health is the lead agency, county level planning is represented as well. Likewise Jefferson County PUD and the Conservation District are represented.

Status/Progress/Products Key Accomplishments

The Planning Unit, Steering Committee and Technical Committee are formed and meeting regularly. They have completed the Level 1 Technical Assessment. Also, developed a list of critical "data gaps", and are actively pursuing options to develop hydrologic characterizations of the three largest sub-basins in the watershed. They have developed a preliminary draft outline of the final plan.

Key Issues

It is one of the 16 "Critical Basins" in the state, with water availability and ESA issues. Seawater intrusion is a concern in the coastal areas.

Primary Challenges to Successful Watershed Planning

- The identified data gaps far exceed available funding, and the PU is struggling to try and decide how to fill these data gaps without sacrificing quality of work. When we get to policy discussions, the limitations in existing water law will be identified as an obstacle (most notable the exemption for 5000 gpd).
- An ongoing political issue associated with the portion of the WRIA which lies in Clallam County. The Dungeness River Management Team (Clallam County) has been very aggressive in pursuing the course of removing the Clallam County portions from the purview of the WRIA 17 Planning Unit.

5.13 Elwha/Dungeness – WRIA 18

Lead Agency: Clallam County
Amount of Grant: $475,000
Optional Elements: Quality, Habitat, Flows
Status: Phase 3

Initiating Governments: Clallam County, Jamestown S'Klallam Tribe, City of Port Angeles, Elwha Klallam Tribe, Agnew Irrigation District

Water Resource Interests on the Planning Unit:

Elwha-Morse Management Team West End of WRIA 18 - Elwha Klallam Tribe, City of Port Angeles, Clallam County, Federal government -National Park Service, civic organizations, education caucus, environmental caucus, recreation caucus, forestry caucus, industry caucus - Daishowa Mill, property owners, water purveyors, fisheries and commercial/economic development, Department of Ecology

Dungeness River Management Team - East End of WRIA 18 - Clallam County, Jamestown S'Klallam Tribe, North Olympic Land Trust, Protect the Peninsula's Future, Dungeness-Quilcene Planning process participant, Recreational fisheries, Sequim Dungeness Water Users Association, City of Sequim, Riverside landowner, Department of Ecology and Department of Fish and Wildlife, USFWS - advisory, USFS – advisory, Clallam Conservation District - advisory

Organizational Structure

Three segments in WRIA 18

- WRIA 18 governments group = initiating governments plus Ecology: Clallam County, Elwha Tribe, Jamestown S"lallam Tribe; City of Port Angeles, Agnew irrigation district
- Dungeness River Management Team: members appointed, alternates formally designated; subcommittees designated as needed; standing executive committee; annual elections
- Elwha Morse Management Team: caucuses plus governments: Elwha Tribe, City of Port Angeles, Clallam County, Ecology, plus interest caucuses. Only subcommittee = water conservation.
- The Clean Water committee is overlapping its membership and responsibilities: members of the DRMT are working with governments and property owners to address shellfish downgrades, development of a TMDL for 303-d listed streams, integrating water quality planning to address planning and response requirements from each authority.

Staffing and Use of Outside Service Providers

Hired consultant working mostly on his own with small staff, commutes between Vashon and Port Angeles. Is writing watershed plan, has summarized Phase 2 information for DRMT, in process of doing same for EMMT.

Linkages to Other Planning Efforts

- Integration of 2496 and 2514 has been very strong for the DRMT; they have reviewed all the local projects, ranked them and forwarded list to North Olympic Lead Entity.
- Less strong integration on EMMT side, partially due to no standing technical committee and need to regather interested parties on the EMMT and in the caucuses each time for project review.
- Local land use planning integration spoken about at DRMT, will be facing some big issues related to ground water development, exempt wells, regulation by local government;
- EMMT has been discussing some GMA issues related to water supply, issues of how far outside the UGA Elwha river water might go.
- Stormwater, water quality problems with storm run-off, problems with stream flashiness, all are issues for both DRMT, EMMT.
- Utility system planning – City of PA has been a little reluctant to share info, some better info coming as a result of the water conservation committee. PUD's water also subject of discussion, but PUD not at EMMT meetings. Water suppliers in EMMT mostly caught up in discussions related to dam removal. Related to coordinated water system plan for city and PUD.

- Shoreline management – not a huge topic, county ordinances are fairly salmon friendly. Planner that was working on update of plan no longer at County, lots of turnover in staff recently.
- Dungeness Water Users Association would love to be funded for participation in the comprehensive irrigation district management plans – they will need financial assistance to do it.
- DRMT wants to integrate salmon recovery planning with watershed planning, trying to draft plan to do that as much as possible.
- Irrigators are improving salmon habitat to benefit instream flows, working with Salmon Recovery Funding Board, Ecology's Ref 38 program. Irrigators want to participate in the Ag/Fish/Water planning to address ESA coverage (Habitat conservation plans?)

Status/Progress/Products - Key Accomplishments

- Scope of plan for WRIA 18 has been drafted, planning teams are both working on chapters.
- Draft Phase 2 summary of information for DRMT.
- Prioritized list of salmon restoration and habitat protection projects for the Salmon Recovery Funding Board and North Olympic lead entity.
- Study on hydraulic continuity and relationship between mainstem and shallow aquifer nearly completed by USGS.
- IFIM study results for Dungeness reviewed by state, local, tribal and federal biologists in light of ESA listings, other information. Recommended same levels of flow, with request for additional information on relationship between mainstem flows and side channels.
- 1984 Morse Creek IFIM study reviewed by state biologists, discussed with Elwha Morse management team, but not yet in detail. Flow recommendations this winter. Discussion being held up due to city of Port Angeles and Elwha Tribe government to government talks on Morse creek hydro project restart.
- Toe-width measurements completed for east end of WRIA 18, still to be finished for west WRIA 18.
- Measurement of water - part of the trust water right agreement, implemented by the irrigators on their irrigation outtakes – real-time monitoring of diversions.

Key Issues

- Instream flows limiting to salmon, much degraded habitat
- Water quality problems, shellfish downgrade in Dungeness bay
- ESA listed salmon; overlap of Hood Canal chum and Puget Sound Chinook ESUs

- Uncertainty over dam removal, effects on flows and restoration of channel stability
- Disagreement over restart of the Morse Creek hydro project by Pa contractor
- Irrigation infrastructure improvements will affect shallow aquifer wells

Primary Challenges to Successful Watershed Planning

- Lack of funding to develop a regional ground water model.
- Disenchantment of participants with too much process at expense of doing things on the ground.
- Planning unit sentiment that they have too much to do in too little time.
- Local biologists are sometimes unavailable for meetings, too involved in other salmon recovery efforts to attend more meetings.
- Unresolved issues like George T., how much water do cities have a right to, unencumbered with instream flow requirements? Compared to the amount they've historically withdrawn?
- More clarity needed from Ecology re: definitions of what the agency is looking for in the plan.
- More clarity from Governor's Salmon Recovery Office, Joint Natural Resource Committee on integration of 2514/2496.

5.14 Lyre-Hoko/Soleduck-Hoh - WRIA 19/20

Lead Agency: Clallam County
Amount of Grant: $300,810
Optional Elements: Quality, Habitat, Instream Flows (all three, so far; will consider adding storage)

Status: Initially the Initiating Governments for both WRIA 19 and WRIA 20 met together to conduct Phase I of the planning process. The planning process is just now shifting from Phase I to Phase II and with it is coming a fundamental change in the status of the process and players. Now, there will be two separate planning processes, with some overlap. Separate Planning Units have formed, consisting of stakeholders and corresponding IG members, for each watershed. The new PUs just held their initial meetings and will continue to refine stakeholder representation/definition, refine and affirm scopes of work for their respective processes, receive relevant informational and educational presentations, and oversee the Phase II and III portions of the planning process. The IGs only intend to meet as needed to address matters that solely pertain to IGs. When it makes sense to do so, the two PUs may meet together for presentations in an effort to help reduce travel time for visiting speakers.

Initiating Governments: Clallam County, Clallam County PUD #1, Makah Tribe, Lower Elwha Klallam Tribe, Quileute Tribe, Hoh Tribe, City of Forks, Jefferson County

Water Resource Interests on the Planning Unit: Water resource interests on the planning units are represented by Clallam County PUD #1, the various Tribal members, and others. The IGs have expressed an interest in instream flows for the purposes of protecting water resources, in contrast to making water resources available for out-of-basin appropriation.

Organizational Structure

The current structure involves a separate planning unit in each WRIA which consists of a stakeholder group and respective IG members. The PUs are finalizing stakeholder group membership, and will be working to set individual PU goals and objectives for the process.

Staffing and Use of Outside Service Providers

The process is supported by a dedicated (and hard working!) staff person, Jeff Bohman, who works for the project full time. This position is administered by Clallam County. The U.S. Bureau of Reclamation has agreed to conduct an extensive portion of the Phase II water quantity process at no cost to the project.

Linkages to Other Planning Efforts

Forest planning, forest practices, and watershed analysis conducted pursuant to TFW will need to be linked with this planning effort. Nearshore linkages are also important, both along the Strait of Juan de Fuca and into the Pacific Ocean and efforts have been made to understand, and eventually harmonize with, nearshore programs. An extensive review of past planning efforts will be included in the Phase II portion of the process.

Watershed Planning meetings have been held together with Salmon Habitat Recovery meetings, linking the programs and players together on a regular basis.

Status/Progress/Products Key Accomplishments

Planning Units have formed and have begun meeting. The Bureau of Reclamation has agreed to conduct most of the Phase II water quantity work without an outlay of money from the group. The Initiating Governments of these watersheds have elected to work on instream flows, however progress on this specific aspect of the planning process has not evolved beyond the determination to include flow setting recommendations in the plan. A decision on requests for any supplemental or additional funding has not yet been made.

Key Issues

In contrast to the more urban watersheds, WRIAs 19 and 20 are characterized by a very low population level. In fact, WRIA 19 does not have an incorporated city within its boundaries, and WRIA 20 only has one, Forks. So, one important issue is just getting enough people to participate in the planning process. A related issue, but not a significant impediment is that, for most visitors to the process from out of the area, long travel times and overnight stays are just part of doing business in these parts.

In spite of some of North Americas highest recorded rainfall, there are significant concerns about late summer and early fall surface water, especially in drainages without glaciers - this is especially true of the many small independent drainages lacking large aquifers for surface recharge. There is little or no existing artificial storage in either watershed. Runoff is impacted by forest management, but not by extensive farming or development - the runoff regime is not as modified as in other more developed watersheds. One key issue is preservation - maintaining the relatively good water quality, protecting water resources, and conserving fisheries.

The area is characterized by extensive forest cover - approaching 98 percent in some drainages. While attention will be focused on other landuses as appropriate, the obvious issues will relate mostly to the forest cover and the management thereof. This land use dynamic is the key issue to be faced by the planning units in these watersheds. In addition to the issue of preservation mentioned above, I believe the key question is what changes can be made to improve the water quality, runoff parameters, and habitat and enhance important resources that have been negatively impacted by past management practices.

Primary Obstacles to Successful Watershed Planning

The obvious difficulties will be faced by this watershed planning process, including resolution of disparate views and values, the identification and application of sufficient political will to adopt and support changes from the existing status quo. Adequate funding to conduct full and complete instream flow studies (this has already been stated as a concern), inability to learn from the past, and or ability to think of new and more effective ways of moving forward. . And the difficulty of attracting and maintaining an adequate level of public/stakeholder participation will be an ongoing emphasis.

There is currently some good (but still insufficient) funding available, the staff is amongst the best in the state, the BOR comes with the highest credentials, and the planning units, while not harmonious, are working hard together, learning and asking good hard questions.

In these watersheds in particular, the integration of forest management and the watershed planning process will be a challenge - especially between those who do

not feel any significant change is warranted at this time, and those who recognize that changes in forest management are essentially the only key to better protection and enhanced restoration in such a heavily forested region.

5.15 Lower/Upper Chehalis – WRIA 22/23

Lead Agency: Grays Harbor County
Amount of Grant: $927,000
Optional Elements: Quality, Habitat
Status: Phase 2 & Phase 3

Initiating Governments: Grays Harbor County, Lewis County, Mason County, Thurston County, City of Aberdeen, City of Centralia, Boistfort Valley Water, Grays Harbor Water District #2, Confederated Tribes of the Chehalis Reservation, Quinault Tribe. Cowlitz, Jefferson, and Pacific Counties are within the planning area. They are a small portion and opted to not actively participate.

Water Resource Interests on the Planning Unit: Grays Harbor County, Lewis County, Mason County, Thurston County, Aberdeen, Centralia, Chehalis, Hoquiam, McCleary, Montesano, Napavine, Ocean Shores, PeEll, Chehalis Confederated Tribes, Quinault Indian Nation, Port Districts (represented by Port of Grays Harbor), Water Supply Utilities, Citizen - Grays Harbor County, Citizen - Lewis County, Citizen - Mason County, Citizen - Thurston County, Business interests (vacant), Fisheries interests (Chehalis Basin Fisheries Task Force), Agricultural interests (WA Cattleman's Association), Forestry interests (Weyerhaeuser Co), Department of Agriculture, Department of Ecology, Department of Fish & Wildlife, Department of Natural Resources. Add: US Army Corps of Engineers, USFWS

Organizational Structure

- Intergovernmental agreement (Grays Harbor County is Lead Agency)
- Citizens' Advisory Committee
- Steering/Technical Committee (Thurston County staff chairs the committee)

Staffing and Use of Outside Service Providers

Steering/technical support mostly provided by Thurston County, Grays Harbor County, Quinault Indian Tribe, City of Chehalis, Thurston County Citizen representative, City of Napavine

- Ecology provides staff support for LPU per Intergovernmental Agreement.
- Ecology and WDFW doing a IFIM study on 6 sub-basins.
- Grays Harbor County provides staff support as Lead Entity for Salmon Recovery
- Consultant hired to complete Phase 2 Level 1 Assessment
- Consultant hired to help develop the scope (outline) for the phase 3 plan.

Linkages to Other Planning Efforts

- Lead Agency also serves as salmon recovery lead entity.
- Watershed planning and Salmon Recovery Strategy both proceeding at the same time.

Status/Progress/Products Key Accomplishments

Phase 1 (organization) has been completed. The Phase 2 Level 1 Assessment has been completed. Phase 3 (Planning) funding was awarded in 2000 and a scope of work (outline) for the Phase 3 plan is scheduled to be completed by September 30. To make the most efficient use of limited funding and complete the assessment/planning process by the four-year deadline, the local planning unit is starting Phase 3 planning and using the resulting plan structure to determine how to best use the remaining funding for Phase 2 Level 2 Assessment.

An IFIM study is being carried out on six sub-basins where minimum instream flows were set in the 1976 rule. The purpose of the study is to determine if the 1976 minimum instream flows set to guide decisions on applications for water rights are also adequate to protect important fish habitat. This information is necessary before we can evaluate what flows are necessary to balance the competing needs of "water for fish and water for people.

Key Issues

- Upper basin over allocated on paper by 270%
- Upper basin doesn't meet minimum instream flows set in 1976 rule an average of 70 days per year.
- Low flows in summer with low dissolved oxygen and high temperatures.
- High fecal coliform bacteria levels in portions of basin
- High (flood) flows in normal winter.
- Loss of habitat in riparian zone (shade) and in-stream (LWD, reduced depth, pools/riffles)
- Threatened Bull Trout in headwaters
- Coastal Cutthroat Trout on NMFS list for consideration for ESA listing.
- Depressed SASSI Stocks
- Blocking culverts
- Preservation of senior water rights
- Municipalities want their permitted quantities of water protected
- Some cities/towns can not get additional water

- Private property rights

TMDLs create an economic hardship for communities, science behind them is not accepted as realistic, municipalities with permits feel they are unfairly singled out for regulatory action.

Primary Challenges to Successful Watershed Planning

Maintaining participation over a period of time where difficult and controversial issues need to be discussed. The size of the basin. Human resources to support the effort.

5.16 Grays-Elochoman/Cowlitz - WRIA 25/26

Lead Agency: Lower Columbia Fish Recovery Board
Date/Amount of Grants: $975,000
Status: Phase 2 & Phase 3

Initiating Governments: Wahkiakum County, Cowlitz County, Pacific County, Lewis County, Skamania County, Pierce County, Yakima County, City of Longview, City of Kelso, and Cowlitz PUD. Also invited: Yakama Indian Nation, Chinook Tribe and Cowlitz Tribe.

Water Resource Interests on Planning Unit: Cowlitz County, Lewis County, Wahkiakum County, Pacific County, Pierce County and Yakima County. Cities of Longview, Castle Rock, Cathlamet, Kelso, Winlock, Toledo, Mossyrock, Morton and Vader. Cowlitz Tribe, Chinook Tribe, Yakama Indian Nation, , Beacon Hill Sewer District, CDID #1, Cowlitz PUD, Lewis PUD, Wahkiakum PUD, USFS, Weyerhaeuser, Lower Columbia Contractors Association, River City Chamber of Commerce, WFFA, Tacoma Power, Lewis County Farm Bureau, Cowlitz Game and Anglers, Friends of the Cowlitz, Audubon Society, Department of Ecology, Department of Fish & Wildlife, Department of Natural Resources, and Department of Agriculture. Some planning unit members have endorsed the assessment and planning process but are designated as inactive. The have been kept appraised of the groups activities via minutes and public forums.

Organizational Structure

The planning unit has a steering committee that manages consultant contracts and scopes of work. They have just assembled an instream flow subcommittee to put a proposal together for the instream flow grant dollars that are available. In addition, for purposes of conducting outreach on the recommendations for level 2 recommendations, the planning unit has agreed to form informal sub-watershed committees to focus the outreach efforts at the individual sub-watershed level.

Staffing and Use of Outside Service Providers

The Lower Columbia Fish Recovery Board staff is facilitating and handling all logistics of the planning unit meetings. The consultant team had completed the level 1 assessment work for all elements except habitat.

Linkages to Other Planning efforts

The Limiting Factors Analysis work has just been completed for the area and will form the major habitat component of the assessment and watershed plan. In addition the LCFRB has just hired a watershed/salmon recovery planning coordinator whose responsibilities include integrating the watershed management plan with the regional salmon recovery plan. The level 1 assessment has integrated a variety of land use planning and coordinated water system plans.

Key Accomplishments

The planning unit hired a consultant team in 2000. The consultant team, led by Economic and Engineering Services has completed the level 1 assessment and has just completed modifications of their recommendations for level 2 work. The planning unit is considering which recommendations to fund with level 2 assessment money versus instream flow funds. An instream flow subcommittee is preparing and instream flow proposal to submit to Ecology for funding.

Completion of level 1 assessment with recommendations for level 2 work. Formation of instream flow subcommittee and initiation of instream flow proposals

Key Issues

Very low summer flow in streams in the region. Very little data on groundwater availability. The lower Columbia has four listed species (steelhead, Chinook, chum and bull trout). Coho and coastal cutthroat may be listed in the near future.

Primary Challenges to Successful Watershed Planning

Documenting the occurrence and availability of groundwater for future development will be a very expensive undertaking.

5.17 Lewis/Salmon-Washougal - WRIA 27/28

Lead Agency: Lower Columbia Fish Recovery Board
Date/Amount of Grants: $975,000
Status: Phase 2 & Phase 3

Initiating Governments: Skamania County, Cowlitz County, Clark County, and Yakima County. City of Woodland, City of Vancouver. Also invited: Yakama Indian Nation, Chinook Tribe and Cowlitz Tribe.

Water Resource Interests on the Planning Unit: Clark County, Cowlitz County, Skamania County, and Yakima County. Cities of Camas, Battle Ground, Kalama, La Center, Washougal, Ridgefield, Vancouver, Woodland, Yacolt, and North Bonneville. Cowlitz Tribe, Chinook Tribe, Yakama Indian Nation, Clark PU, Cowlitz PUD, USFS, , CDID #2, Port of Kalama, Weyerhaeuser, Clark County Responsible Growth Forum, , Columbia River EDC, Fish First, Citizen-at-Large, Clark-Skamania Fly Fishers, Friends of the East Fork, , Department of Ecology, Department of Fish & Wildlife, Department of Natural Resources, and Department of Agriculture. Some planning unit members have endorsed the assessment and planning process but are designated as inactive. The have been kept appraised of the groups activities via minutes and public forums.

Status/Progress/Products

The Planning Unit has completed Level 1 Assessment and is considering which recommendations to fund with Level 2 assessment money versus instream flow funds. An instream flow subcommittee is preparing and instream flow proposal to submit to Ecology for funding

Organizational Structure

The planning unit has a steering committee that manages consultant contracts and scopes of work. They have just assembled an instream flow subcommittee to put a proposal together for the instream flow grant dollars that are available. In addition, for purposes of conducting outreach on the recommendations for level 2 recommendations, the planning unit has agreed to form informal sub-watershed committees to focus the outreach efforts at individual sub-watersheds.

Staffing and Use of Outside Service Providers

The Lower Columbia Fish Recovery Board staff is facilitating and handling all logistics of the planning unit meetings. The consultant team has completed the level 1 assessment work for all elements except habitat.

Linkages to Other Planning Efforts

The Limiting Factors Analysis work has just been completed for the area and will form the major habitat component of the assessment and watershed plan. In addition the Lower Columbia Fish Recovery Board has just hired a watershed/salmon recovery planning coordinator whose responsibilities include integrating the watershed management plan with the regional salmon recovery plan. The level 1 assessment has integrated a variety of land use planning and coordinated water system plans.

Key Accomplishments

Completion of level 1 assessment with recommendations for level 2 work. Formation of instream flow subcommittee and initiation of instream flow proposal.

Key Issues

Very low summer flow in streams in the region. Rapid growth with the potential to impact streams low flow conditions. Complex issues of hydraulic continuity that will be very expensive to sort out. The lower Columbia has four listed species (steelhead, Chinook, chum and bull trout). Coho and coastal cutthroat may be listed in the near future.

Primary Challenges to Successful Watershed Planning

Documenting the hydraulic continuity issues with respect to ground and surface waters and what that means for future development and how that may impact summer low flows in streams.

5.18 Wind-White Salmon - WRIA 29

Lead Agency: Skamania County
Amount of Grants: 165,000
Status: Phase 2

Initiating Governments: Skamania County, Klickitat County, Yakima County, City of White Salmon, invited: Yakama Indian Nation.

Water Resource Interests: Stevenson, North Bonneville, White Salmon, Bingen, Snowden, Husum, BZ, Underwood, Trout Lake, USFS, Klickitat County, Skamania County, Underwood Conservation District, Port of Skamania, LCFRB, Skamania County PUD, Yakama Nation, Timber- Jon Cole of SD& S Lumber, Cattlemen - Dan Frey, Agriculture- Kelly Kreps, Mining- Jim Fritchie, Citizens- Rick Graves, Brooks Heard, Janet Corsale, Recreation - Kevin Gross, Audubon White Salmon Watershed Council, Wind River Watershed Council, and Department of Ecology.

Organizational Structure

The planning unit has an oversight committee consisting of the initiating governments. The purpose of the oversight committee is to ensure the grant dollars are spent appropriately. In addition the planning unit has an RFP committee that manages consultant contracts and scopes of work. A third committee that was formed this spring is the instream flow committee which has prepared a draft proposal for submittal to Ecology for instream flow funding. They have just assembled an instream flow subcommittee to put a proposal together for the instream flow grant dollars that are available.

Staffing and Use of Outside Service Providers

Skamania County is conducting all the logistical work associated with the meeting, and minutes and facilitation.

Linkages to Other Planning Efforts

The Limiting Factors Analysis work has just been completed for the area and will form the major habitat component of the assessment and watershed plan. In addition the Lower Columbia Fish Recovery Board has just hired a salmon recovery planner whose responsibilities include developing a regional salmon recovery plan and integrating it into the watershed management plan. The salmon recovery plan will encompass the western half of the WRIA The level 1 assessment will integrate a variety of land use planning and coordinated water system plans.

Status/Products Produced – Key Accomplishments

The planning unit members are finalized the scope of work for the assessment and planning work to be completed in the next 4 years and received money from Ecology to conduct the level 1 assessment. The planning unit has hired Envirovision to lead up a consultant team for the level 1 and began working on the assessment in July. We expect a completed assessment in January 2002. An instream flow subcommittee is developing an instream flow proposal for submittal to Ecology.

Completion of Scope of Work for the planning effort, hiring a consultant team and initiating work on a level 1 assessment. Forming an instream flow committee and assembling a proposal for funding for submittal to the Department of Ecology.

Key Issues

Several species of salmon listed as endangered under the ESA.

Primary Challenges to Successful Watershed Planning

Not clear yet.

5.19 Klickitat - WRIA 30

Lead Agency: Klickitat County
Amount of Grant: $404,999
Optional Elements: Quality, Habitat and currently undecided on Instream Flows
Status: Phase 1

Initiating Governments: Klickitat County, City of Goldendale, Klickitat PUD, Yakima Nation (invited - has chosen not to be an Initiating Government, but will participate in the planning process and will be a voting member of the Planning Unit).

Water Resource Interests on the Planning Unit: Currently, the PUD, largest city, County, Water Conservancy Board, HB 2496 salmon habitat recovery Lead Entity organization, conservation district, port district, health district, State agencies, Federal agencies, timber, agriculture, large industry, small business, education, environmental, citizens at-large, and the Tribe are participating.

Organizational Structure

Currently, Klickitat County is Lead Agency and has hired a coordinator for both the watershed planning effort and salmon recovery under 2496.

Staffing and Use of Outside Service Providers

A consulting firm has been chosen to assist the Planning Unit during Phase 2. Phase 2 has yet to begin formally and no Phase 2 or 3 funds have been utilized. The Lead Agency (Klickitat County) has hired a coordinator for both the Watershed Planning and Salmon Recovery efforts.

Linkages to Other Planning Efforts

The initiating governments intend to have a strong connection between salmon recovery and watershed planning efforts within the basin.

Status/Progress/Products Key Accomplishments

WRIA 30 has had some changes in staff which have resulted in the planning unit going back to address phase one issues. They are still working to formally complete Phase 1. A consulting firm has been chosen to assist the Planning Unit during Phase 2. They have a diverse Planning Unit formed and meeting routinely.

Key Issues

TMDL in progress, fisheries/ESA, water for growing communities, groundwater quality, maintaining water for agriculture.

Primary Challenges to Successful Watershed Planning

Currently, there is disagreement over a portion of the Yakama Indian Reservation Boundary. The boundary dispute, with its associated jurisdictional/sovereignty issues, may cause the Yakama Nation to withdraw its participation from the planning unit. The dispute may create challenges to plan approval.

5.20 Walla Walla - WRIA 32

Lead Agency: Walla Walla County
Amount of Grant: $50,000
Optional Elements:
Status: Just applied for Phase 2 funding

Initiating Governments: Walla Walla and Columbia Counties, Gardena Farms Irrigation District # 13, City of Walla Walla

Water Resource Interests on the Planning Unit: Planning unit members represent a wide spectrum of water resource interests in the Walla Walla Basin: incorporated cities, irrigation districts, irrigated agriculture and dry-land agriculture producers, builders and loggers, the Confederated Tribes of the Umatilla Reservation, educators, environmental and community groups and members of the "general" public.

Organizational Structure

WRIA 32's planning unit has organized. The initiating governments have recognized thirty-six citizens as members of the planning unit and resolved that the planning unit address four (4) components of watershed planning: water quantity, instream flow, water quality and habitat. The Columbia County Board of Commissioners took the above actions through Columbia County Resolution 2001-02, dated January 16, 2001; the City of Walla Walla took the above actions through Resolution 2000-46, passed sometime between December 18, 2001 and January 2, 2001; Gardena Farms Irrigation District No. 13 took the above actions through resolution 2001-02, dated January 8, 2001; and the Walla Walla County Board of Commissioners took the above actions through resolution 00355, dated December 12, 2000.

The planning unit has adopted ground rules and organized 4 committees: instream flow and water quantity, water quality, habitat, and a steering committee. The initiating governments and planning unit did not invite the state to be a voting member of the planning unit, but have requested technical assistance from the state Departments of Fish and Wildlife and Ecology.

Staffing and Use of Outside Service Providers

The WRIA 32 planning unit has been organized and assisted in the early stages by Representative J. David Mastin and Fountainhead Irrigation, a local consulting firm. As work on phase II begins, the steering committee (made up of members of the 2514 planning unit and the bi-state HCP group) will be ranking the top 3 or 4 consulting firms for possible future contracts. Interviews of the top 3 or 4 ranked consultants will be conducted in the fall of 2001 by the combined planning unit and bi-state HCP group.

Linkages to Other Planning Efforts

The WRIA 32 planning process and the bi-state HCP development are closely linked by common membership and similar interests. Linkages to the Growth Management Act, Critical Area Ordinances, Shorelines Master Program and other county planning initiatives have not yet been made. The planning process is also linked to the Walla Walla Basin Watershed Council, an Oregon based planning effort similar in scope to the 2514 planning process. Efforts are being made to provide holistic planning for the watershed without regard for the state political boundary when possible.

Status/Progress/Products Key Accomplishments

Phase I of watershed planning is complete. Ground rules for conduct have been established and a decision making process put in place. The broad issues have been described and committees are working on assembling data and refining assessment needs.

Key Issues

Water resource planning in WRIA 32 is driven by ESA listings for Bull Trout and Steelhead. The Walla Walla River is fully appropriated by a Federal Adjudication before it enters Washington from Oregon. The basin adjudication is approaching it's centennial. Neither Washington nor Oregon water law provide a mechanism for protecting water returned to instream uses if that water has a later priority date than downstream permitted uses. Determining and adopting instream flows will be challenging for the local planners, but providing and protecting them may require major state resource allocations

The City of Walla Walla is currently using Aquifer Storage and Recovery techniques and the planning unit will likely investigate additional off-stream storage options. Providing adequate flows in the summer months is going to require commitment and creativity.

The 303 (d) list has the Touchet River listed for fecal coliform and temperature; the Walla Walla River is listed for fecal coliform, temperature, persistent pesticides and pH; Mill Creek is listed for pH and temperature. These listings will be addressed through a TMDL process that will be coordinated with the efforts of the planning unit. Mill Creek has been channelized to prevent flooding and both flows and temperatures imperil fish during the summer. The Touchet River has serious sediment concerns in the spring run-off season and temperature and flow issues affecting fish later in the summer.

The habitat component of the watershed protection and enhancement is currently being addressed through programs offered by the Conservation District and National Resource Conservation Service.

Primary Challenges to Successful Watershed Planning

The primary obstacle to successful watershed planning and the main impetus to undertake it are the same: threat of take under the ESA. If take occurs and enforcement ensues, planning will stop and litigation will begin. Development of a basin HCP can increase the probability of success of watershed planning or divert the effort to meet the acute symptoms and not resolve the chronic disease. The state will need to be diligent to ensure that the goals of watershed planning are met concurrently with the goals of Habitat Conservation Planning.

5.21 Lower Yakima /Naches/Upper Yakima - WRIA 37/38/39

Lead Agency: Tri-County Water Resource Agency
Amount of Grant: $1,032,706 plus $85,000 special legislative appropriation
Optional Elements: Quality, Habitat
Status: Phase 3

Initiating Governments: Benton County, Yakima County, Kittitas County, City of Yakima, City of Ellensburg, Sunnyside Valley Irrigation District, Roza Irrigation District, and Cowiche Tieton Irrigation District.

Water Resource Interests on the Planning Unit: Irrigation districts, agricultural interests and organizations (very diverse), conservation districts, state agencies, municipalities, and counties, WSU.

Organizational Structure

The Initiating Governments formed the Tri-County Water Resource Agency that became Lead Agency. During Phase 3 the Planning effort has maintained a Planning Unit, Steering Committee, and committees for water supply, water quality, habitat, inter-governmental relations, and public outreach.

Staffing and Use of Outside Service Providers

Watershed grant funding pays for the Lead Agency Executive Director and an administrative support person. Additionally, a coordinating consulting firm and sub-contractors have been hired to work with Planning Unit technical committees to develop the plan by providing technical support, researching existing information and developing management options and implementation strategies.

Linkages to Other Planning Efforts

Because of the size and technical complexity of the basin and the diversity of interests there has been linkages with Sub-basin planning, development of the Limiting Habitat Factors Analysis, and development of a basin-wide Lead Entity under 2496. Yakima River Watershed Council planning that predated 2514

planning has been folded into the current watershed assessment and planning effort.

Status/Progress/Products Key Accomplishments

- Phase 3 approximately 50% complete.
- They have produced - Phase 2 (Level 1 Assessment, January 2001) See www.co.yakima.wa.us/tricnty

Type of Actions that may be Included in Watershed Plan

The water quantity effort is focusing on water reliability, conservation, water transfers, multi-purpose storage options, and future municipal and industrial supply. Potential strategies to address habitat and water quality enhancement/restoration including focus on priority stream segments or tributaries for riparian areas, side channels, shoreland development, flow augmentation, migration corridors, woody debris, modification of instream structure, barriers and screening, clean water and the water clean-up plan process.

Key Issues

Drought, storage, fisheries/ESA citizen law suits, 303 (d) listed water bodies/CWA, development/growing communities, conservation and relinquishment, groundwater moratorium /surface-groundwater continuity, adjudication process.

Primary Challenges to Successful Watershed Planning

Lack of recognition of locally delegated state program and participation by the Yakama Nation. Lack of adequate state agency commitment (other than Ecology) and support. The need for full partnership with this state program by the U.S. Bureau of Reclamation (a majority of the water in the basin is managed by the Bureau). The ability to address the instream flow component of watershed planning is hampered by the fear of the misuse of such information; by federal/state agencies or for citizen law suits, if generated. Insufficient Phase 3 funds to complete additional Level II Assessment work, complete the plan and SEPA compliance. Need for ongoing funding and extended time frame to address ongoing planning issues (i.e. groundwater study), implementation, and monitoring. Adequate implementation funding will be crucial to a successful program.

5.22 Upper Crab/Wilson - WRIA 43

Lead Agency: Lincoln County
Amount of Grant: $45,000
Optional Elements: Startup
Status: Phase 1

Initiating Governments: Lincoln County, Spokane County, Adams County, Grant County, City of Medical Lake

Water Resource Interests on the Planning Unit: City of Odessa, City of Wilson Creek, City of Wilbur, Lincoln County Conservation District, Spokane County Conservation District, Adams County Conservation District, State of Washington, Washington Cattlemen's Assoc., USDI Bureau of Reclamation, Strangeland-Tyler Aquifer Study Group, City of Sprague, City of Almira, City of Davenport, Town of Harrington, Town of Creston, USDA Natural Resources Conservation Service, USDI Bureau of Land Management, and a host of private businesses and land owners.

Organizational Structure

Lincoln County is Lead Agency, but has contracted with Lincoln County Conservation District to facilitate meetings and generally coordinate Planning Unit activities. One subcommittee met briefly to develop draft operating.

Staffing and Use of Outside Service Providers

Lincoln County has coordinated and facilitated Planning Unit activities through Phase 1, and will continue to do so in Phase 2. Technical tasks for the Watershed Assessment have not been assigned.

Linkages to Other Planning Efforts

Lincoln County CD has been conducting water quality baseline assessments in the Upper Crab Creek Watershed since 1998. Upper Crab Creek is part of a TMDL process begun in 1998 to determine a total phosphorus load allocation for Moses Lake. Lincoln County is currently conducting CFHMP flood mapping.

Lincoln County is currently conducting CFHMP flood mapping.

Status/Progress/Products Key Accomplishments

The PU initiated in January 2000, and the group is meeting on a monthly basis and is working on Phase 1 tasks. State participation has been requested, and we are beginning discussions on the scope of optional elements we will address. The PU has struggled with the development of operating procedures, having spent about half of our monthly meetings the past four months on this task. They anticipate applying for Phase 2 funds by June 30 2002. One of the primary issues to date with this PU is to protect the rights of landowners to sustain livestock grazing in riparian pastures. They recognize the need to sustain stream health, including water quality and fish habitat, but believe that livestock management is compatible with natural resource protection.

Key Issues

Crab Creek is intermittent in several extensive reaches, partly due to the hydrology of the watershed, and partly due to the cumulative effects of groundwater withdrawals. Many residents of the watershed are concerned that this planning effort will lead to the loss of their riparian areas, primarily for livestock grazing. Because of the intermittent condition of the stream, instream flows and fish habitat are a concern, and the Planning Unit is currently engaged in discussions around these issues.

Primary Challenges to Successful Watershed Planning

Upper Crab/Wilson is a rural, primarily agricultural watershed, and there is a pervasive mistrust of state and federal government. A bigger challenge is that there is little opportunity to store or save surface water in this relatively flat, low elevation watershed. The availability of adequate groundwater for out-of –stream uses is very limited.

5.23 Wenatchee – WRIA 45

Lead Agency: Chelan County
Amount of Grant: $211,700
Optional Elements: Quality, Habitat, Flows
Status: Phase 2

Initiating Governments: Chelan County, Wenatchee Reclamation District, City of Wenatchee

Water Resource Interests on the Planning Unit: Chelan County, Chelan County PUD, City of Cashmere, City of Leavenworth, City of Wenatchee Colville Confederated Tribes, Yakama Indian Nation, Wenatchee Reclamation District, Chelan County Conservation District, Chelan-Douglas Health District, Chumstick Community Council, Peshastin Community Council, Monitor Community Council, Dryden Community Council, Cascade Orchards Irrigation Company, Jones-Shotwell Ditch, Peshastin/Icicle Irrigation District, Wenatchee-Chiwawa Irrigation District, Private Landowners, WA Grower's Clearinghouse, WA State Horticultural Association, Chelan-Douglas Farm Bureau, Peshastin Creek Watershed Council, Icicle Creek Watershed Council, Mission, Brender, Yaksum Creeks Watershed Association, American Whitewater, Whitewater Guides, Wenatchee Row and Paddle Club, Wenatchee Sportsman, Chelan-Douglas Land Trust, The Nature Conservancy, Trout Unlimited, WA Association of Realtors, North Central Home Builders' Association, Longview Fibre, Washington State Department of Fish and Wildlife , Washington State Department of Ecology, National Marine Fisheries Service (ex officio), United States Forest Service (ex officio), United States Fish and Wildlife Service (ex officio)

Organizational Structure

Planning Unit - The purpose of the Planning Unit is to develop collectively a watershed plan that will assess watershed conditions and, specifically, address water quantity, water quality, in-stream flow, and habitat issues.

Steering Committee - The Steering Committee is a subcommittee of the Planning Unit and is generally responsible for evaluating policy and action items and making policy and process recommendations to the full Planning Unit.

Technical Sub-Committees - The Planning Unit may designate Technical Sub-Committees to address technical or policy issues and develop alternative approaches for the Planning Unit as needed. Technical Sub-Committees could include agencies and/or individuals with special technical expertise or interest in the subject area. Technical Sub-Committees will exist for a limited duration and until their work is completed on the subject area as directed by the Planning Unit. Current technical sub-committees include the Water Quantity/Instream Flow, the Water Quality, the Habitat, and the Regulatory Compliance sub-committees.

Staffing and Use of Outside Service Providers

They have three staff working on Watershed Planning and Salmon Recovery activities as well as having hired consultant services for specific activities.

Linkages to Other Planning Efforts

Chelan County and the Watershed Program have greatly enabled the Wenatchee Watershed Planning effort by integrating it with the total Maximum Daily Load (TMDL) process, Salmon Recovery, Limiting Factor's Assessment, Land-Use Planning, The Mid-Columbia HCP, and the NWPPC's Provincial Rolling Review process. Chelan County and the Watershed Program have also been instrumental in developing the Upper Columbia Salmon Recovery Board (UCSRB), which has not only supported watershed and salmonid health in the Wenatchee River watershed, but the Entiat, Methow, Okanogan, Moses Coulee and Foster Creek Watersheds.

Related Activity	Linkage
Limiting Factors Assmt.	The Washington Conservation Commission just released a Draft-Final LFA for the Wenatchee. It is already being used by the Habitat sub-committee of the Wenatchee Watershed Planning Unit to generate projects, identify data gaps, and generate citizen involvement.
Salmon Recovery	Mike Kaputa is Lead Agency representative of the WWPU, Lead Entity for the Chelan County Salmon

	Recovery Area, and acting in an administrative capacity for the Upper Columbia Salmon Recovery Board. He is also responsible for the development of the Sub-Basin Summary and Sub-Basin Plan of the NWPPC Provincial Rolling Review process. In these overlapping roles of direct responsibility, he is able to integrate these efforts more easily that were there several people occupying these separate functions.
USFS Watershed Assmts.	The USFS, Leavenworth/Lake Ranger District's former fisheries biologist, Dan Rife, was a central participant in the Wenatchee LFA effort. The FEMAT Watershed Assessments were used as a primary source of the Limiting Factor's Assessment. Ken Mac Donald is another USFS fisheries biologist who is an active member of LFA. Additionally, Ken is an important member of the regional recovery efforts.
Upper Columbia Salmon	The WWPU has several members on the policy and technical Recovery Board committees of the UCSRB. While the UCSRB has been concentrating on salmon recovery activities, the Board is increasingly realizing the importance of Planning Unit's watershed plans to address critical watershed and salmonid health issues. Members of the WWPU regularly communicate opportunities and progress in the Wenatchee watershed to the technical and policy committees.
<u>Related Activity</u>	<u>Linkage</u>
Mid.-Columbia PUD HCP	The USFS, USFWS, the Yakama Nation, the Colville Nation, and WDFW are active participants in the Mid-Columbia HCP process. While coordination between the PUD and these parties is occurring mostly at the regional level (Upper Columbia Salmon Recovery Unit), the parties fully expect mitigation monies to be passed through to implement watershed plans.
NWPPC Process	The UCSRB has been coordinating their efforts with the NWPPC. The NWPPC has traveled to the region to explore opportunities to integrate their efforts with state efforts. The UCSRB will work with the NWPPC in whatever way will most benefit the regional recovery of threatened and endangered species, restore and protect the watersheds and communities. The WWPU and other

planning units in the region are depending on the UCSRB to assure that this occurs. Currently the UCSRB is developing sub-basin reports for the NWPPC.

Status/Progress/Products Key Accomplishments

The Wenatchee Watershed Planning Unit (WWPU) was established in late 1999. However, there has been watershed assessment and planning ongoing in the Wenatchee River watershed for several years. Starting in 1989, a broad base of stakeholders have used a series of grants from the Department of Ecology's Water Quality Program to develop the "Wenatchee Watershed Action Plan". While primarily non-point source water quality issues were addressed under the plan, the plan is serving as a foundation for water quality and other watershed assessment by the Wenatchee Watershed Planning Unit.

The U.S. Forest Service has been conducting fisheries habitat-focussed watershed assessments have been ongoing in the Wenatchee River, as well. As a majority of the Wenatchee River watershed is in Forest Service ownership, the USFS watershed assessments and Endangered Species Act-prompted biological assessments are valuable products being incorporated into the Watershed Planning Act assessment and planning process. These were primary references used by the Washington Conservation Commission and the Wenatchee Technical Advisory Committee, in developing the Salmon, Steelhead, and Bull Trout Habitat Limiting Factors Report for the Wenatchee Basin. The Wenatchee Habitat LFA is, in turn, a primary reference being used by the habitat sub-committee of the Wenatchee Watershed Planning Unit.

In addition to watershed assessment, planning, and implementation ongoing at the Water Resource Inventory Area (WRIA) scale, there is ongoing assessment, planning, and implementation ongoing at the sub-WRIA, and regional (i.e. province, region, or Salmon Recovery Unit) scales. There are a number of sub-watershed groups active in the Wenatchee River watershed including the Chumstick, Icicle, Mission, and Peshastin Councils. These groups are focussed mainly on water quality and salmon habitat issues, though they are gaining understanding and interest in water quantity and instream flow issues through the WWPU. The Wenatchee River watershed is also benefiting from assessment work being conducted on the regional scale. The Upper Columbia Regional Technical Team (RTT) recently completed the first draft of a regional recovery strategy, identifying priority sub-watersheds, and priority issues on a reach-by-reach basis within each watershed. Also supporting enhancement of watershed health and salmon recovery on the regional level will be the recently initiated Columbia-Cascade sub-basin summary and plan development process, under the Northwest Power Planning Council's Provincial Rolling Review. This process defines the issues and projects that are most likely to receive funding under the Bonneville Power Administration's (BPA) Fish and Wildlife Mitigation Funding program.

The Wenatchee Watershed Planning Unit (WWPU) has only recently begun the Phase II (Assessment) work. It has yet to expend any resources on development of technical product.

Key Issues

Instream flows for threatened and endangered species, protection of existing water rights, Wenatchee Lake Storage Enhancement Feasibility

Primary Challenges to Successful Watershed Planning

The greatest obstacle is the seemingly endless stream of "initiatives." Watersheds are being "loved to death" by so many processes. While intended to empower or support watershed planning, it often serves to distract or added burden to watershed planning efforts already underway. Effective watershed planning areas like the Wenatchee Watershed Planning Unit can accommodate many types of issues. However, with limited resources and time running out, new initiatives and issues may not be addressed.

Also, the lack of involvement of the National Marine Fisheries Service is a major concern, given that there are endangered salmon and steelhead (i.e. 4-d rule doesn't help).

5.24 Entiat WRIA 46

Lead Agency: Chelan Conservation District
Amount of Grant: $250,000
Optional Elements: Flows, Quality, Habitat
Status: Phase 2
Initiating Governments: Chelan County, City of Entiat, Entiat Irrigation District

Water Resource Interests on the Planning Unit: Individual WRIA Residents/Landowners, Longview Fibre Company, NW Audubon, NW Ecosystem Alliance, Chelan-Douglas Health District, Chelan County PUD, Washington Department of Ecology, USDA NRCS, USDA Forest Service, USDI BLM, US Fish & Wildlife Service, Yakama Nation, Colville Confederated Tribes and Bands

Organizational Structure

The current structure of he EWPU is of a single, decision-making body. Four technical sub-committees work independent of the EWPU, though only in a technical capacity. An informal "administrative committee" comprising the CCCD, USFS, and WDOE meet regularly to assure timely progress, coordination of efforts, and to perform routine administrative functions.

Staffing and Use of Outside Service Providers

Phil Jones – Natural Resource Conservation Service, Watershed Planning Coordinator/Facilitator
Tom Brannon – WSU Extension: Issues Facilitator
Rick Edwards – Entiat Ranger District – Area Lead, Logistics Coordinator
Pegy Entzel – Chelan County Conservation District, Grants/Staff Administration
Mike Rickel - technical assistance
Scott Wolf - technical assistance
Val Hampton - administrative assistance and outreach
Gran Rhodus - water quantity and water quality personal services contract
Woody Trihey - Entrix Consulting, instream flow contract for product

Supplemental Outside Service Providers

MBI	Entiat Habitat Sub-Committee's watershed assessment using the EDT, under SRF Board contract through the Yakama Nation.
W. Barry Southerland	Fluvial Geomorphologist formerly with NRCS, back in school for PhD

Linkages to Other Planning Efforts

Related Activity	Linkage
Limiting Factors Assmt.	The Washington Conservation Commission used a prior draft of the Entiat CRM Plan as the majority of the Limiting Factors Assessment report for the Entiat WRIA.
Salmon Recovery	The Entiat WRIA Planning Unit has several members on the local and regional technical and policy groups. Mike Kaputa of Chelan County is both an "Initiating Government" of the EWPU, Lead Entity for the Chelan County Salmon Recovery Area, and acting in an administrative capacity for the Upper Columbia Salmon Recovery Board. He works closely with the CCCD (EWPU Lead Agency).
USFS Watershed Assmts.	The USFS, Entiat Ranger District's Area Lead, Rick Edwards, is a central participant in the EWPU assisting the NRCS with coordination, budgeting, work planning, minutes, and revisions to the Plan. The FEMAT Watershed Assessments were used as a primary source of the CRM Plan, and subsequently developed Limiting Factor's Assessment.

Upper Columbia Salmon Recovery Board	The EWPU has many members on the policy and technical committees of the UCSRB. While the UCSRB has been concentrating on salmon recovery activities, the Board is increasingly realizing the importance of Planning Unit's watershed plans to address critical watershed and salmonid health issues. Members of the EWPU regularly communicate opportunities and progress in the Entiat watershed to the technical and policy committees.
Mid.-Columbia PUD HCP	The USFS, USFWS, the Yakama Nation, the Colville Nation, and WDFW are active participants in the Mid-Columbia HCP process. While coordination between the PUD and these parties is occurring mostly at the regional level (Upper Columbia Salmon Recovery Unit), the parties fully expect mitigation monies to be passed through to implement watershed plans.

Related Activity	Linkage
NWPPC Process	The UCSRB has been coordinating their efforts with the NWPPC. The NWPPC has traveled to the region to explore opportunities to integrate their efforts with state efforts. The UCSRB will work with the NWPPC in whatever way will most benefit the regional recovery of threatened and endangered species, restore and protect the watersheds and communities. The EWPU and other planning units in the region are depending on the UCSRB to assure that this occurs. Currently the UCSRB is developing sub-basin reports for the NWPPC.

Status/Progress/Products Key Accomplishments

The Entiat Water Resource Inventory Area (WRIA) Planning Unit (EWPU) was established in September 1998. The EWPU is composed primarily by members of the Entiat Landowner Steering Committee (LSC) and Technical Advisory Committee (TAC) formed under the UDSA -Natural Resource Conservation Service's (NRCS) Coordinated Resource Management (CRM) process. The Entiat CRM was initiated in 1993 by the Chelan County Conservation District (CCCD) and the Entiat Chamber of Commerce.

1. AFW Tour Package, 24 pp. The compendium contains information about the Entiat WRIA Planning Unit's (EWPU) vision and goals; planning unit status; planning unit membership; technical support group membership; historical

timeline of events in the watershed; map of large fire occurrence; current hydrologic summary information ;delineation of "headwaters, transfer, and depositional zones" of the watershed.

2. Instream Flow Workshop – Over 45 hours of videotape documenting the USGS-Biological Resources Division IF 251 "Designing and conducting Instream flow Analyses Using the Instream Flow Incremental Methodology – IFIM". This was a 3-day workshop sponsored by the Washington Department of Ecology and the Entiat WRIA Planning Unit. Also available are copies of manuals and guideline documents, session handouts, spreadsheets used during the presentation, and URL's for pertinent web sites and related information.

3. Entiat WRIA Planning Unit – Habitat Subcommittee and Mobrand Biometrics, Inc. (MBI). July, 2001. Entiat EDT Watershed Analysis – Draft Progress Report". 155 pages.

4. The Entiat Geographic Information System ... known as "EGIS." The EGIS is a compilation of the most current natural resources information for the Entiat WRIA. It includes such things as: water rights, claim, and certificate places of use and points of diversion, gage station locations, wells, parcel layer, salmonid distribution, reaches listed on 303-d, water quality point sources, and much more.

Key Issues

Instream flow, residential development

Primary Challenges to Successful Watershed Planning

The greatest obstacle is the seemingly endless stream of "initiatives". While intended to empower or support watershed planning, it often serves to distract or added burden to watershed planning efforts already underway. Effective watershed planning areas like the Entiat WRIA Planning Unit can accommodate many types of issues. However, with limited resources and time running out, new initiatives and issues may not be addressed.

Also, the lack of involvement of the National Marine Fisheries Service is a major concern, given that there are endangered salmon and steelhead (i.e. 4-d rule doesn't help).

5.25 Moses Coulee/Foster Creek - WRIA 44/50

Lead Agency: Foster Creek Conservation District
Amount of Grant: $432,706
Optional Elements: Quality, Habitat

Status: Phase 2

Initiating Governments: Douglas County, Grant County, Okanogan County, East Wenatchee, Bridgeport, Colville Confederated Tribes, Bridgeport Irrigation District #1, East Wenatchee Water District

Water Resource Interests on the Planning Unit: Douglas County, South Douglas Conservation District, Foster Creek Conservation District, WSU Cooperative Extension, City of East Wenatchee, City of Bridgeport, City of Wenatchee - Water Resources Dept, Community of Orondo, Wenatchee Reclamation District, Bridgeport Irrigation District # 1, East Wenatchee Water District, Palisades Irrigation District, Palisades School District, Bridgeport School District, Orondo School District, Colville Confederated Tribes, Bureau of Land Management, Natural Resources Conservation Service, Douglas County Farm Service Agency, Washington Association of Realtors, North Central Washington Homebuilders Association, The Nature Conservancy of Washington, Douglas County Cattlemen, Chelan/Douglas County Farm Bureau, WA Growers Clearing House Association, Douglas County Wheatgrowers, Department of Ecology, Department of Fish & Wildlife, Department of Natural Resources.

Organizational Structure

The Planning Unit meets monthly to discuss issues, share information and make consensus based decisions on how to proceed with watershed planning. Foster Creek Conservation District, the lead agency, provides support, meeting facilitation, grant administration and keeps the minutes at planning unit meetings. Planning unit committees generally meet during part of the full planning unit meetings. Meetings are scheduled based on the needs of the planning unit members with breaks to accommodate busy times, such as harvest for the many members in agricultural.

Staffing and Use of Outside Service Providers

The Foster Creek Conservation District, the lead agency, currently provides a meeting facilitator, and a planning unit coordinator. The coordinator administers contracts, sees that assessment work is completed, assists consultants and works as a liaison between the planning unit and the community. The planning unit has contracted with consultants to collect data and complete their phase 2 assessment.

Linkages to Other Planning Efforts

The Foster Creek Conservation District is lead entity for Salmon Recovery Funding Board activities in the County. Additional planning coordination will be included when the unit moves into Phase 3 planning.

Status/Progress/Products Key Accomplishments

The Moses Coulee/Foster Creek Planning unit completed Phase 1 of watershed planning by developing a scope of work for the watershed assessment. In September, 2000 they began working on the Phase 2 assessment and have hired consultants to collect data and produce the assessment report. The consultants are collecting data and an assessment report is expected to be complete during the third quarter of 2002.

The Moses Coulee/Foster Creek Planning Unit entered Phase 2 assessment of watershed planning in September of 2000. Current activities include data collection by consultants contracted to complete the assessment. The planning unit has a detailed budget that defines how they will complete the assessment with the available watershed planning funds. Phase 3 planning will begin upon the completion of their assessment.

It is early in the planning process for the Moses Coulee/Foster Creek Planning Unit with the first major product expected to be an assessment sometime next year. The planning unit has produced the following products: Mission Statement; Scope of Work for the Assessment; and Watershed Assessment Budget.

Key Water Resource Issues in the WRIA

ESA related actions; Instream flows; Paper water rights vs. actual water use; Ecology's water rights processing backlog; Storage.

Primary Challenges to Successful Watershed Planning

Few challenges to successful planning have been identified thus far. The planning unit members seem to work together well and have been able to resolve issues as they arise with the assistance of their facilitator.

5.26 Methow - WRIA 48

Lead Agency: Okanogan County
Amount of Grant: $250,000 plus $500,000 special legislative appropriation
Optional Elements: Quality, Habitat
Status: Phase 2

Initiating Governments: Okanogan County, Methow Valley Irrigation District, Colville Confederated Tribes, Town of Twisp

Water Resource Interests on the Planning Unit: Pateros, Twisp, Upper Methow, Chewuch, Okanogan County, Recreation, Agriculture, Beaver Creek, Environmental, Goat/Wolf Creek, Colville Tribe, Business, E. Lower Methow, MVID, Early Winters, Methow Valley Canal Associates, Ground Water Action

Committee, Fish, W. Lower Methow, Pilot Project, Department of Ecology, Department of Fish & Wildlife.

Organizational Structure

The Methow Basin Planning Unit meets on the second and fourth Wednesday evening of each month to discuss issues, share information and make consensus based decisions on how to proceed with watershed planning. Okanogan County Water Resources Department, the lead agency, provides support, grant administration and keeps the minutes at planning unit meetings. The Methow Basin Planning Unit has one active committee, the Steering Committee, that meets the first and third Wednesday evening of each month. The Steering Committee provides overall process leadership and develops products to be presented to the full planning unit for approval.

Staffing and Use of Outside Service Providers

Current staffing of the Methow Planning Unit is provided by the Okanogan County Water Resources Department and its one person staff. The Planning Unit has contracted various outside resources to complete investigations such as Golder Associates, the USGS, Pacific Watershed Institute and Ken Williams.

Linkages to Other Planning Efforts

The Methow Planning Unit is involved in salmon recovery activities in the basin and the Okanogan Water Resources Department is co-lead entity, with the Colville Confederated Tribes for Salmon Recovery Funding Board activities in the County.

Status/Progress/Products Key Accomplishments

The Methow Basin Planning Unit (MBPU) continues to move forward with studies designed to characterize and model groundwater, surface water and the interaction of the two within the Methow Basin. The MBPU has just revised its schedule to focus on completing a watershed plan for the water quantity component by the end of September 2002. Since this work will be completed by a consultant, the MBPU will focus on addressing the remaining three components of watershed planning with the intent to include in the September 2002 document or soon thereafter. Golder Associates and the USGS have been working in the basin calibrating and collecting data from a twenty-three gauge stream gauge network, modeling the groundwater and surface water in the basin which includes gathering data for the models, and conducting a sub basin specific detailed groundwater study. Initial results should be available in reports to be issued during the fourth quarter of 2001. All information gathered during these efforts is being entered onto a website that contains a searchable electronic library.

Progress Toward Plan Completion - The MBPU has expended the $250,000, Phase 1 & 2 Watershed Planning grants provided under Chapter 90.82 RCW. To date, the MBPU has not finished a watershed assessment however it is anticipated that by March of 2002, the water quantity watershed assessment will be completed. In fiscal year 2000, the state legislature provided an additional $500,000, for the MBPU to use to establish a baseline hydrologic assessment. This legislative appropriation, administered by the DOE, has been committed for the following: a groundwater study and model, development of a USGS watershed model, and a consultant (Golder Associates) to complete the water quantity assessment that fulfills the requirements of RCW 90.82.070. Okanogan County, the lead agency for the WRIA, has provided limited funding for a grant writer for the MBPU to obtain additional grant funding from other sources to complete assessments for the optional elements of watershed planning.

Products Produced – Completion of the Methow Basin Planning Unit Workplan. The following final documents have been produced or funded by the MBPU: Review of the Methow Limiting Factors Assessment, Ken Williams, September 2000; Lower Chewuch River Snorkel Survey Report, Pacific Watershed Institute, December 2000; Methow Basin Planning Unit Workplan, MBPU, June 2001, Definition of a scope of work for an IFIM study, Ken Williams, Spring 2001; initiated a Redd and Spawner Recruitment Survey, Ken Williams, yet to be published.

Key Issues

ESA related actions; Instream flows; Paper water rights vs. actual water use; exempt wells; Ecology's water rights processing backlog; Storage.

Primary Challenges to Successful Watershed Planning

The crisis created by the ESA endangered species listing of salmon and related regulatory actions. Low attendance at planning unit meetings. Limited funding provided under Chapter 90.82 RCW. Lack of acceptance of diverse opinions, ideas and positions.

5.27 Hangman (Latah) – WRIA 56

Lead Agency: Spokane County Conservation District
Amount of Grant: $225,000
Optional Elements: Quality, Habitat, Flows
Status:

Initiating Governments: Spokane County, Whitman County, Hangman Hills Water District No. 15, City of Spokane

Water Resource Interests on the Planning Unit: Washington Wheat Growers, Washington Hay Growers, Coeur d'Alene Tribe, USDA Natural Resources

Conservation Service, Washington Cattlemen's Assoc., Hangman Valley Golf Course, Qualchan Golf Course, Avista Corp., BNSF Railroad, Marshall Community Coalition, Washington Environmental Council, City of Cheney, City of Spangle, City of Tekoa, Town of Waverly, Town of Rockford, Town of Latah, Pine Creek Conservation District, Trout Unlimited, local land owners, private citizens and businesses.

Organizational Structure

Spokane County Conservation District is Lead Agency, and it functioning as meeting facilitator and project coordinator. SCCD is also conducting some of the watershed assessment technical work. Several subcommittees convened to address specific issues in developing the Phase 2 Scope of Work, and a separate committee operates to facilitate public participation.

Staffing and Use of Outside Service Providers

The Planning Unit has contracted with John Buchanon, a geologist with Eastern Washington University, to evaluate groundwater storage and movement in the alluvial aquifer of lower Hangman Creek.

Linkages to Other Planning Efforts

The Hangman (Latah) Creek Water Quality Plan was completed in 1994. This document helps guide conservation efforts and farming activities that affect water quality in the Hangman watershed. A water Conservancy Board has been established in Spokane County, training was completed in April 2001. A TMDL for DO was initiated in 1998, but has been put on hold. The PU intends to address water quality as an optional element. A Comprehensive Flood Hazard Management Plan was completed in lower Hangman Creek along the alluvial floodplain in 1999. Local jurisdictions are beginning to implement measures that will reduce flooding in Vinegar Flats, and reduce accelerated erosion.

Status/Progress/Products Key Accomplishments

The Hangman Planning Unit has completed all Phase 1 tasks, including and intergovernment MOU, operating procedures, and has requested state participation. The Phase 2 Work Plan was completed in fall 2000, and they began working on Phase 2 tasks in spring 2001, primarily looking at geologic and groundwater characteristics of alluvial deposits in the lower Hangman valley. They have contracted with John Buchanan of Eastern Washington University to characterize groundwater storage and movement in the Hangman Valley alluvium, and contracted with Bob Derkey of WDNR to characterize surficial geology in greater detail and describe cross-sections in the lower Hangman valley alluvium. In summer 2001 Spokane CD completed a seepage run along Hangman Creek to help identify gaining and losing reaches.

Key Issues

One of the primary issues facing the PU is that of instream flows in Hangman Creek. During much of the summer flows are often below 5 cfs at the mouth. Accordingly, any minimum instream flow established by rule will effectively close the watershed to non-interrupted water rights. Much of the lower Hangman valley lies within the City of Spokane, and GMA planning studies project substantial growth in the next 20 years. Water for this area is delivered by the City of Spokane from wells located in the Spokane aquifer. The City of Spokane has adequate inchoate water rights for the foreseeable future. Development in Spokane County just south (upstream) from the city/county boundary at Hatch Road has also accelerated in recent years, and is likely to continue. Hangman Hills Water District No. 15 serves several existing subdivisions, and is the largest commercial water supplier. Future growth in this area may be dependent upon, or limited by, the ability of suppliers to acquire new water rights. Properties along Hangman Creek rest on mixed layers of highly erodable and unstable alluvial sands and outburst flood gravels. Concerns of homeowners and developers about rapidly eroding stream banks may lead to actions ranging from education and awareness, to prescriptive streambank protection, to building permit conditions that recognize hazards and condition building in areas susceptible to accelerated erosion. Shoreline issues revolve primarily around streambank stabilization projects to address erosion concerns mentioned above.

Primary Challenges to Successful Watershed Planning

Hangman Creek is a flashy, relatively low elevation watershed, with limited opportunities for augmentation by storage, conservation, or groundwater pumping. Because the hydrology of the system is highly modified by land use changes, primarily annual crop rotations, it is difficult to establish reference instream flows. Thus another challenge will be in establishing a reasonable instream flow recommendation for a minimum instream flow rule.

5.28 Little/Middle Spokane - WRIAs 55/57

Lead Agency: Spokane County
Amount of Grant: $475,000
Status: Phase 2

Optional Elements: The Initiating Governments initially expressed reluctance to address instream flows, but in Fall 2000 the Planning Units elected to address instream flows if additional funding could be found. The Planning Unit will apply for Instream Flow Supplemental Funding for the Little and Middle Spokane rivers. Although the Initiating Governments indicated on the Phase 1 application that they would like to address Water Quality and Habitat, they later decided not to. The PU has let that decision stand.

Initiating Governments: Spokane County, Stevens County, Pend Oreille County, City of Spokane, Vera Water District, Whitworth Water District

Water Resource Interests on the Planning Unit: Spokane County Conservation District, the Spokane Aquifer Joint Board, Spokane Homebuilders Assoc., City of Deer Park, The Lands Council, Spokane Valley Chamber of Commerce, Washington Environmental Council, State of Washington, Kaiser Aluminum and Chemical Co., League of Women Voters, Stevens County PUD #1, Friends of the Little Spokane River, Pend Oreille Conservation District, Avista Utilities, Inland Empire Paper, Spokane Tribe, Washington State Dairy Assoc., Spokane Economic Development Council, Center for Environmental Law and Policy, Spokane Regional Health

Organizational Structure

Spokane County functions as Project Coordinator, and facilitated PU meetings for Phase 1. Subcommittees were convened to develop Tasks for the Phase 2 Work Plan, including, Instream Flow, Water Quality, Water Quantity, Water Rights, and Public Participation.

Staffing and Use of Outside Service Providers

A consultant was hired to facilitate meetings for Phase 2. All of the technical work for the Phase 2 (Level 1 Watershed Assessment) was contracted to Golder and Assoc., including an assessment of existing documents and data, a surface-groundwater interactive water routing model, and an evaluation of existing water rights and current water use. We also hired Sara Hubbard Grey to facilitate Planning Unit meetings throughout Phase 2.

Linkages to Other Planning Efforts

The Lead Agency (Spokane County) has been engaged in Water Planning in the Spokane Aquifer since the 1970s. Stan Miller, the project coordinator has been a constant presence with Spokane County Utilities Division, and lead for the Aquifer Protection Program since the mid-1970s. Current planning activities in the Middle Spokane (WRIA 57) include siting and planning a new regional wastewater treatment facility, extensive sewering, cooperating with EPA and the State of Idaho for Silver Valley mine waste cleanup, and cooperating with Avista in FERC relicensing for all five of their Spokane River hydroelectric facilities. A water Conservancy Board has been established in Spokane County, training was completed in April 2001. A TMDL for metals was submitted 8/31/99 without PU participation. A DO/BOD TMDL and phosphorus model update report is due summer 2001, PU involvement limited to ground/surface water interaction studies. Spokane County and the City of Spokane are completing their Comprehensive Plans in summer 2001. Planning in urban growth areas was modified due to cooperation spawned from the PU between Spokane County, Ecology, and Dept. of Health through water system plan updates. Issues regarding long-term land use

planning will require cooperation between Idaho and Washington. This is particularly crucial for water systems seeking additional water for domestic systems growth.

Status/Progress/Products Key Accomplishments

The PU has completed an interagency MOU, operating procedures, request for state participation, and a Phase 2 Work Plan. They have selected an integrated surface/ground water routing model (MIKE SHE) to develop a water balance and assist with long-term assessments of water needs and help predict how future withdrawals will affect the Spokane-Rathdrum aquifer and the Spokane River, and the hydraulically connected Little Spokane River. The Middle Spokane (WRIA 57) is relatively data rich, which has provided our Phase 2 consultant, Golder & Assoc., with a lot of input for the model, but created significant data management challenges. Much of the recent focus has been on the Spokane river/aquifer interaction. Interagency cooperation has been utilized to maximize resources on many past and current investigations related to water quality, TMDLs, water supply, fish habitat, metals and PCB pollution and health risks. Cooperators include Ecology, Fish and Wildlife, US EPA, Spokane County, City of Spokane, Spokane County Conservation District, Spokane Community College, consultants, US Geological Survey, Eastern Washington University, and others. Golder & Assoc. is producing our Level 1 Watershed Assessment, a draft of which should be completed by fall 2001. The Planning Unit developed a draft Phase 3 work plan and applied for FY 2002 Phase 3 funds.

- ❑ Phase 2 Work Plan developed
- ❑ Contact awarded to conduct Level 1 Assessment
- ❑ Planning Unit elects to apply for Supplemental Instream Flow Grant

Key Issues

Housing development growth in the Spokane Valley has cause many domestic water suppliers to reach the limit of their water rights. New water rights have not been issues for nearly ten years. In the meantime, instream flows in the Middle Spokane have not been set by rule, and any new rights would be conditioned to a negotiate recommendation of 4000 cfs at the Spokane Gage. In the Little Spokane River, and Instream Flow was set by rule in 1978 but was base on a recurrence interval, not on real fish or other needs. Numerous and often clustered exempt domestic wells in the Little Spokane watershed is beginning to have localized effect on groundwater levels, thus affecting individual domestic supply wells.

Primary Challenges to Successful Watershed Planning

The Planning Unit needs to get the Phase 3 funding work plan, budget, and grant agreement completed so we can complete and begin utilizing our water balance model for planning purposes. They are just now beginning to work with the state of

Idaho to form a cooperative Spokane/Rathdrum aquifer planning process. Without cooperative, interstate management of this resource, Washington downstreamers may conserve and augment the Spokane River for small increases in out-of-stream uses, while Idaho is issuing large industrial water rights that nullify our efforts in Washington.

5.29 Colville - WRIA 59

Lead Agency: Stevens County Conservation District
Amount of Grant: $450,000
Optional Elements: Quality, Habitat
Status:

Initiating Governments: Stevens County, Pend Oreille County, City of Colville, Stevens County PUD No. 1, Spokane Tribe

Water Resource Interests on the Planning Unit: USDA Forest Service, State of Washington, NE Tri-County Health, Stevens County Cattlemen, City of Chewelah, City of Springdale, US Fish and Wildlife Service, WSU Cooperative Extension, Chewelah Golf Course Assoc., Hay Growers Assoc., Northwest Alloys, Inc., City of Kettle Falls, USDA Natural Resources Conservation Service, Sierra Club, Homebuilders Assoc., Women in Timber, Inland Empire Public Lands, National Wild Turkey Foundation, Farm Forestry Assoc., Waitts Lake Property Owners Assoc., Loon Lake Property Owners Assoc., Deer Lake Property Owners Assoc., Kalispel Tribe, Lake Roosevelt Forum, Jumpoff Joe Homeowners Assoc., Meyers Falls Hydro Plant, Colville Confederated Tribes, NE Washington Wildlife Management Group, numerous farmers, ranchers and landowners.

Organizational Structure

Planning Unit – The planning unit consists of members representing a broad range of interests and professions. In addition to the membership, planning unit meetings are well attended by interested residents.

Administrative Committee – an administrative committee reviews budgetary concerns, sets/screens agenda items, and assigns tasks prior to the planning unit meetings.

Instream Flow Committee – is concerned with gathering information and making a recommendations concerning the application for instream flow money.

Water Quality Committee – is concerned with gathering information and making a recommendation concerning the application for water quality money.

Water Quantity Committee – is concerned with studying and reviewing paper water rights, water use, and land use.

Technical Oversight Committee – is concerned with oversight of work that the Stevens County Conservation District and USGS is providing the planning unit.

Staffing and Use of Outside Service Providers

Staff include one fulltime Conservation District person acting as the Watershed Coordinator as well as several other Conservation District personnel used in a part-time basis, and USGS.

Linkages to Other Planning Efforts

Local Land Use Planning - Residential development could reach a standstill where serviced by private or municipal water systems, due to the fact that WRIA 59 is closed for further appropriation of water. The City of Chewelah has no inchoate municipal water, so are facing a growth crisis in the near future.

Status/Progress/Products Key Accomplishments

The PU organized in January 2000, completing a mission statement and operating procedures and requesting state participation by May 2000. They developed a Phase 2 Work Plan and applied for Phase 2/3 funds in June 2000, which was granted. The PU has contracted with US Geological Survey to conduct an aquifer model of the alluvial deposits in the Colville Valley, which will help determine if ground water is available for flow augmentations, or if groundwater storage is possible. The planning Unit is cooperating with Stevens County CD and Stevens County Planning for GIS base mapping, test well locations, surface geology and soils, water bodies, water quality information, and other data display.

The Planning Unit is very interested in investigating options for surface or ground water storage, conservation, reuse, enforcement, and other methods of protecting or augmenting instream flows to protect senior water rights and provide limited water for growth, particularly in communities.

Key Issues

- Future water quantity needs in a closed basin
- Establishing a Conservancy Board to help with adjusting to water quantity needs
- Instream Flow – Flow is set by Rule on the mainstem, should they proceed with applying for $
- Beaver encroachment and relocation efforts
- Water storage

Primary Challenges to Successful Watershed Planning

- ❑ Closed Basin
- ❑ Instream Flow has been set by Rule on mainstem and does not consider flow from tributaries

5.30 Kettle - WRIA 60

Lead Agency: Ferry County
Amount of Grant: $45,000
Optional Elements: Still in Phase 1
Status: completing Phase 1, applying for Phase 2 $

Initiating Governments: Stevens County, Ferry County, Okanogan County, Curlew Water District, Colville Confederated Tribes

Water Resource Interests on the Planning Unit: Citizens for a Bi-National Review of the Dam, Concerned Friends of Ferry County, Curlew Lake Assoc., Eagle Cliff Grange #712, UDSA Forest Service, Upper Columbia Resource Council, Ferry County Natural Resource Board, North Ferry Enterprise Community, Republic Area Chamber of Commerce, State of Washington, Orient Water Co., PUD #1, Kettle River Advisory Board, WSU Cooperative Extension, Ferry Conservation District, Grand Forks Watershed Coalition, Kettle Range Conservation Group

Organizational Structure

- ❑ Planning Unit
- ❑ Phase II Scoping Committee

Staffing and Use of Outside Service Providers

- ❑ Ferry County is providing one staff member to coordinate activities
- ❑ Professional facilitator has been retained for planning unit meetings

Linkages to Other Planning Efforts

- ❑ Kettle River Advisory Board.
- ❑ USFS
- ❑ County Growth Management Planning

Status/Progress/Products Key Accomplishments

The PU held its first meeting in January 2001, and has since developed an interagency MOU, Operating Procedures, and a draft Phase 2 Work Plan. The state was formally invited to participate in spring 2001. The Initiating Governments

have thus far elected not to address optional elements. They have applied for Phase 2 funds in June 2001.

Key Issues

- Water rights, transfers, and availability for irrigation and livestock watering.
- Instream flows as they relate to ESA listed Bull Trout
- Beaver encroachment and relocation

Primary Challenges to Successful Watershed Planning

Lack of clarity and consensus with the planning unit's operational procedures

5.31 Pend Oreille - WRIA 62

Lead Agency: Pend Oreille Conservation District
Amount of Grant: $450,000
Optional Elements: Quality, Habitat
Status: Phase 2 & Phase 3

Initiating Governments: Pend Oreille County, Stevens County, City of Newport, Kalispel Tribe, Pend Oreille County PUD

Water Resource Interests on the Planning Unit: Pend Oreille County Weed Board, Seattle City Light, USDA Forest Service, State of Washington, City of Newport, Town of Cusick, timber, agricultural, environmental, development, and industrial interests.

Organizational Structure

- Planning Unit
- Water Quality Subcommittee

Staffing and Use of Outside Service Providers

The Pend Oreille Conservation District provides the watershed coordinator and support staff. Entrix has been retained for the completion of the Level I Assessment.

Linkages to Other Planning Efforts

- USFS
- County Growth Management Planning
- Clark Fork FERC relicensing
- Tri-State Water Quality Committee

Status/Progress/Products Key Accomplishments

The PU began meeting in fall 1998, and has requested state participation, established ground rules and goals, developed Phase 1 and Phase 2 Work Plans and determined to address all three optional elements, including instream flow. We hired Entrix in spring 2001 to complete the Level 1 Watershed Assessment, while working concurrently with the PU to scope issues for the Watershed Plan (Phase 3). WRIA 62 is one of the few WRIAs in the state where new water permits have been issued in the past several years, as flow in the mainstem Pend Oreille River has been considered adequate for instream flow needs during most years. The reach of the Pend Oreille River that flows through Pend Oreille County (about 5% of the total watershed) is highly regulated by dams and hydroelectric facilities. Many of the tributaries are unregulated, however, and instream flow needs for fish, including bull trout, have not been assessed. Accordingly, the PU intends to apply for supplemental instream flow funding through ESHB 1832. We will also seed additional funding for the Water Quality Optional Element, and to examine storage options and feasibility. The planning unit applied for and received Phase 2 and 3 funding in June 2000, giving them about three years to complete their plan.

Key Issues

- Instream Flow – reviewing MOU recommended instream flow and Bull Trout listings in the mainstem and tributaries.
- Beaver encroachment and relocation efforts

Primary Challenges to Successful Watershed Planning

- Lack of focus
- Municipal water needs
- US/Canada coordination
- WA/ID coordination

Section 6
Additional Topics of Interest to Planning Units

6.1 Local Level Planning for the Impacts of Climate Variability on Washington's Water Resources

The availability of water resources in the Pacific Northwest is significantly affected by short- and long-term variations in climate. In February 1996, for example, above-normal winter precipitation led to record-breaking streamflows in western Washington; five years later (2000-01), unusually low winter precipitation contributed to one of the worst droughts on record in Washington State. On a regional scale, studies suggest that average temperature in the Pacific Northwest has increased 1.5°F in the last 100 years.

The impact on water resources and users can be significant. Taking these changes into account in developing long-range watershed management plans may help mitigate the impacts, thereby reducing disruption to local economies and the natural environment.

Two major sources of climate variability in the Pacific Northwest are the El Niño/Southern Oscillation (ENSO) and Pacific Decadal Oscillation (PDO). El Niño, the warm phase of the ENSO cycle, refers to a warming of ocean temperatures in the equatorial belt of the Pacific Ocean for three or more seasons. La Niña, the cool phase of the ENSO cycle, refers to a cooling of the same equatorial waters for three or more seasons. El Niño/La Niña events can be forecast six to nine months in advance based on observations of equatorial Pacific sea surface temperatures.

Less well known but possibly as influential on Pacific Northwest climate is the PDO. Unlike tropical ENSO events, which typically last 6 to 18 months, the PDO produces cyclical variations in North Pacific Ocean temperatures lasting 20 to 30 years. A warm phase PDO brings warmer ocean water to the Pacific Northwest while a cool phase PDO brings cooler ocean water to the region.

ENSO and PDO-related changes can affect temperature precipitation, snow pack, and streamflow throughout the Pacific Northwest. Past climate records indicate that El Niño events and warm PDO phases increase the potential for below normal precipitation and above normal temperatures. Conversely, La Niña events and cool phase PDOs increase the potential for above normal precipitation and cooler temperatures. When the warm/cool phase variations of these cycles occur together (El Niño in a warm phase PDO/La Niña in a cool phase PDO), the probabilities for precipitation and temperature extremes are even higher.

Long-term climate trends can also be significant. Studies indicate that since year 1900, average global surface temperature has increased 1°F[1]. On a regional scale, average temperature in the Pacific Northwest has increased 1.5°F in the last 100 years[2]. This type of trend can potentially affect precipitation patterns and snow pack. The relationship between long-term and short-term oscillations is not fully defined at this time.

The Department of Ecology (Ecology) is working closely with the Climate Impacts Group at the University of Washington to improve local level understanding and planning for short-term and long-term climate effects. Projects include identifying existing sources of climate/planning information that could benefit watershed planning efforts, developing a check list for assessing community vulnerabilities to climate-related changes in water resources, and expanding web-based information on climate variability, climate change, and planning for uncertainty.

Watershed Planning Units interested in more information can contact the Climate Impacts Group at (206) 616-5350 or visiting the Web site at:

http://jisao.washington.edu/PNWimpacts

6.2 Exempt Wells

Under the State Ground Water Code, ground water cannot be withdrawn unless the user files an application and obtains a permit from Ecology prior to construction of the well or other means of withdrawal. However, certain types of uses are exempted from this requirement, and a valid right to use water can be established without applying for a permit under certain conditions (Chapter 90.44.050 RCW). Uses exempted from the requirement to apply for a permit are:

- Stock-watering;
- Watering a lawn or non-commercial garden up to one-half acre in size;
- Domestic uses (single or group domestic) up to 5,000 gallons per day (gpd); and,
- Industrial purposes up to 5,000 gpd.

Wells installed under this provision of the law are commonly referred to as "exempt wells," because they are exempt from the requirement to obtain a permit[3]. The more technically correct term is "exempt withdrawals," since under the law more than one well can be used to accomplish a single withdrawal. The law indicates that Ecology may, from time to time, require the water user to provide information regarding the means for withdrawal and the quantity of the withdrawal.

[1] IPCC (Intergovernmental Panel on Climate Change), 2001. *Summary for Policymakers, a Report of Working Group I* (20 pp). Available from www.ipcc.ch

[2] Mote, P., 2001a. Scientific assessment of climate change: Global and regional scales. White Paper for the Climate and Water Policy Workshop, Skamania Lodge, Stevenson, Washington, July 16-17, 2001. JISAO/SMA Climate Impacts Group, University of Washington.

[3] While a permit is not required for the water withdrawal, a permit to drill the well is required.

In 1997 the State Attorney General's Office issued an opinion that where a property owner wishes to develop land and supply the development with domestic water from several wells, and the water used in aggregate will exceed 5,000 gpd, regardless of the number of wells, a water right permit is required. This opinion, however, is not universally accepted. This is currently the subject of litigation, with a case before the Washington State Supreme Court (as of October 2001).

Because they are exempt from the application process, Ecology's database on water rights, the Water Rights Application Tracking System (WRATS) does not contain any information on exempt wells. Therefore, in order to estimate the number of exempt wells within a WRIA, other types of information must be used. Information that may be useful in this regard includes:

- Census data, or local jurisdiction planning documents indicating the number of households in a given area (e.g., County level; municipality; census blocks, etc.);
- Estimates of the number of households served by public water systems, derived from the Department of Health (DOH) information such as the Water Facilities Inventory (WFI);
- Subtracting the number of households served by public water systems from the total number of households in the area of interest can yield an estimate of households served by exempt wells.
- Standard estimates of the quantity of water used per household can be developed from published sources or by reviewing data available from public water systems in the WRIA. Geographical considerations such as differences in water uses and sources between eastern and western Washington should be factored into the estimates developed.
- Ecology's database on drilling of new wells.

In using this approach, care must be taken that the data is properly interpreted and applied, to avoid underestimation or overestimation.

In addition, for projecting future conditions, zoning or land use plans can be used to project potential numbers of exempt wells at full buildout.

Exempt wells can represent an important factor in local ground water withdrawals in some parts of the state. Depending on the aquifers involved and local conditions, they may affect water levels in wells used by other ground water users, wetlands, and/or flows in nearby surface waters. Population growth and related development in some areas may lead to increased numbers of exempt wells. Planning units may wish to consider whether and how exempt wells should be addressed in the watershed plan, including management recommendations, if appropriate.

6.3 Estimation of Water Uses

Chapter 90.82.070 RCW indicates that the assessment performed for a WRIA or multi-WRIA planning area shall include "an estimate of the surface and ground water actually being used in the management area." This item can pose considerable difficulty, due to the lack of data on actual water uses in many parts of the state. This section provides a brief discussion of sources of information that can be used to contribute to estimating quantities of water used.

As a first approximation, the quantity of water represented by water rights in the planning area (certificates, permits, and claims) can be informative. The quantities of water associated with most water rights certificates and permits (but not claims) are listed in Ecology's Water Rights Application Tracking System (WRATS) database. The quantities of water listed in WRATS can then be summed up, by WRIA. At least one planning unit has concluded that this sum represents an estimate of the maximum authorized quantity of water use, excluding claims. Claims would then need to be considered as another component of the water rights in a given area. The WRATS database can be used to determine the number of claims, but not the quantity of water associated with each claim, so this will remain an area of uncertainty in estimating water uses.

In most WRIAs most of the water diverted or withdrawn is associated with a small percentage of the water users. For example, a few irrigation districts, cities, or self-supplied commercial/industrial facilities may account for the majority of water used. In many cases, these users maintain records of water use, and this information may be available if requested by a watershed planning unit. For example, many irrigation districts can provide records of water diversions. Virtually all large public water systems maintain records on the quantity of water produced by their sources of supply. Private facilities may also keep records of water pumped or diverted.

For those users where it is not practical to obtain specific records, estimates may be developed through independent calculations. For example, DOH can provide its Water Facilities Inventory (WFI) database, which contains a listing of most public water systems in the state. For many of these water systems, the number of service connections (i.e. customers) is recorded in the database. This information can be accessed through the DOH web site at:

http://www.doh.wa.gov/ehp/dw/Our_Main_Pages/data_download.htm

This information can be used in combination with an estimated quantity of water used per connection, to generate an estimate of the total quantity of water used for public water supply. Similar techniques can be applied to the agricultural sector, if the number of acres irrigated can be estimated, and if information on crop water needs is available. While these techniques have limited precision, they can help

narrow down the range of estimated water use, and can highlight key areas of uncertainty where further analysis may be of value.

Specific land-use information may also be useful in estimating water uses, at least for smaller WRIAs or subareas within WRIAs. For example, at least one watershed planning unit has explored using aerial photographs or satellite imagery to confirm the extent of subdivisions and agricultural land uses, in selected areas.

Section 2.5 describes a process currently under way to develop a rule on measuring water use. It is likely that this rule will result in increased availability of information on water uses in many areas of the state. However, this information likely will not be available in time to support the "first generation" of watershed plans currently being developed for many WRIAs. Watershed planning units may wish to identify the expected impact of the new rule in their WRIA, and build into their watershed plans a way that additional information on water uses can be incorporated in ongoing water resource management efforts in future years.

Bibliography

Bibliography

The original Guide to Watershed Planning and Management (Draft, January 1999) contains an extensive Bibliography, listing information resources that may be helpful to Planning Units across the State. For purposes of this Addendum, the following sources of general interest are added to the Bibliography. In addition, a number of web sites listed in this Addendum are included.

Washington Water Law

An Introduction to Washington Water Law
By James K. Pharris and P. Thomas McDonald
Washington State Office of Attorney General (January 2000)

Salmon Recovery

Guidance on Watershed Assessment for Salmon
Joint Natural Resources Cabinet (May 2001)

Roadmap for a Salmon Habitat Conservation Strategy at the Watershed Land
(Draft)

Climate and Water Resources

Effects of Climate Change on Water Resources in the Pacific Northwest: Impacts and Policy Implications.
Hamlet, Alan F. and co-authors, July 2001.
JISAO/SMA Climate Impacts Group, University of Washington, CIG Publication #145.

Impacts of Climate Variability and Change, Pacific Northwest.
Mote, Philip, D. Canning, D. Fluharty, R. Francis, J. Franklin, A. Hamlet, M. Hershman, M. Holmberg, K. Gray-Ideker, W.S. Keeton, D. Lettenmaier, R. Leung, N. Mantua, E. Miles, B. Noble, H. Parandvash, D.W. Peterson, A. Snover, and S. Willard, 1999.
National Atmospheric and Oceanic Administration, Office of Global Programs, and JISAO/SMA Climate Impacts Group, Seattle, Washington, CIG Publication #120.

Other Documents

Extinction is Not an Option: Statewide Strategy to Recover Salmon
Governor's Salmon Recovery office (November 1999)

Instream Flows in Washington State, Past, Present, and Future
Clifford D. Rushton, Department of Ecology (Draft, July 2000)

Web Sites

Washington State Legislature, bill information page:
http://www.leg.wa.gov/wsladm/bills.cfm

Lower Columbia Fish Recovery Board
http://www.1cfrb.gen.wa.us

Shared Strategy for Recovery of Salmon in Puget Sound
http://www.sharedsalmonstrategy.org.

Salmon Recovery Funding Board (SFRB)
http://www.wa.gov/iac.salmonmain.html

List of Lead Entities for Salmon Recovery Funding
http://www.wa.gov/wdfw/grants/leadlist.htm

Ecology: information on watershed planning program, grants and planning units
http://www.ecy.wa.gov/watershed/index.html

Ecology: information on proposed use-based water quality standards:
http://www.ecy.wa.gov/biblio/0010064.html

Ecology: information on proposed temperature criteria for fresh waters:
http://www.ecy.wa.gov/biblio/0010066.html

Ecology: information on a Programmatic Environmental Impact Statement for setting instream flows:
http://www.ecy.wa.gov/biblio/0111001.html.

Ecology: information on Total Maximum Daily Loads (TMDLs)
http://www.ecy.wa.gov/programs/wq/tmdl/index.html

Ecology: information on Water Conservancy Boards
http://www.ecy.wa.gov/programs/wr/conservancy_boards/cb-home.html

Ecology: information on the proposed rule on measurement of water use:

http://www.ecy.wa.gov/programs/wr/measuring/measuringhome.html

Ecology: information on the Water Storage Task Force:
http://www.ecy.wa.gov/programs/wr/wstf/wstfhome.html

Ecology: information on the Storm Water Policy Advisory Committee and its report
http://www.ecy.wa.gov/programs/wq/stormwater/swpac.html

Washington Stormwater Management Study
http://www.ecy.wa.gov/programs/wq/stormwater/report/itrm_rpt.html#top

Puget Sound Water Quality Management Plan
http://www.wa.gov/puget_sound/Publications/manplan00/mp_index.htm

Governor's Salmon Recovery Office:
http://www.governor.wa.gov/esa/

Guidance on Watershed Assessment for Salmon Recovery
http://www.governor.wa.gov/esa/watershed/watershed.htm

Statewide Strategy to Recover Salmon (*Extinction is Not an Option*):
http://www.governor.wa.gov/esa/strategy/summary.htm

Department of Health, data on Public Water Systems:
http://www.doh.wa.gov/ehp/dw/Our_Main_Pages/data_download.htm

Appendices

Appendix A
Watershed Management Act
(Chapter 90.82 RCW)

(As Amended in 2001 Legislative Session)

CHAPTER 90.82 RCW

WATERSHED PLANNING

(Formerly: Water resource management)

Sections

RCW 90.82.005 Purpose. The purpose of this chapter is to develop a more thorough and cooperative method of determining what the current water resource situation is in each water resource inventory area of the state and to provide local citizens with the maximum possible input concerning their goals and objectives for water resource management and development.

It is necessary for the legislature to establish processes and policies that will result in providing state agencies with more specific guidance to manage the water resources of the state consistent with current law and direction provided by local entities and citizens through the process established in accordance with this chapter. [1997 c 442 § 101.]

RCW 90.82.010 Finding. The legislature finds that the local development of watershed plans for managing water resources and for protecting existing water rights is vital to both state and local interests. The local development of these plans serves vital local interests by placing it in the hands of people: Who have the greatest knowledge of both the resources and the aspirations of those who live and work in the watershed; and who have the greatest stake in the proper, long-term management of the resources. The development of such plans serves the state's vital interests by

ensuring that the state's water resources are used wisely, by protecting existing water rights, by protecting instream flows for fish, and by providing for the economic well-being of the state's citizenry and communities. Therefore, the legislature believes it necessary for units of local government throughout the state to engage in the orderly development of these watershed plans. [1997 c 442 § 102.]

RCW 90.82.020 Definitions. Unless the context clearly requires otherwise, the definitions in this section apply throughout this chapter.

(1) "Department" means the department of ecology.

(2) "Implementing rules" for a WRIA plan are the rules needed to give force and effect to the parts of the plan that create rights or obligations for any party including a state agency or that establish water management policy.

(3) "Minimum instream flow" means a minimum flow under chapter 90.03 or 90.22 RCW or a base flow under chapter 90.54 RCW.

(4) "WRIA" means a water resource inventory area established in chapter 173-500 WAC as it existed on January 1, 1997.

(5) "Water supply utility" means a water, combined water-sewer, irrigation, reclamation, or public utility district that provides water to persons or other water users within the district or a division or unit responsible for administering a publicly governed water supply system on behalf of a county.

(6) "WRIA plan" or "plan" means the product of the planning unit including any rules adopted in conjunction with the product of the planning unit. [1997 c 442 § 103.]

RCW 90.82.030 Principles. In order to have the best possible program for appropriating and administering water use in the state, the legislature establishes the following principles and criteria to carry out the purpose and intent of chapter 442, Laws of 1997.

(1) All WRIA planning units established under this chapter shall develop a process to assure that water resource user interests and directly involved interest groups at the local level have the opportunity, in a fair and equitable manner, to give input and direction to the process.

(2) If a planning unit requests technical assistance from a state agency as part of its planning activities under this chapter and the assistance is with regard to a subject matter over which the agency has jurisdiction, the state agency shall provide the technical assistance to the planning unit.

(3) Plans developed under chapter 442, Laws of 1997 shall be consistent with and not duplicative of efforts already under way in a WRIA, including but not limited to watershed analysis conducted under state forest practices statutes and rules. [1997 c 442 § 104.]

RCW 90.82.040 WRIA planning units--Watershed planning grants--Eligibility criteria--Administrative costs. (1) Once a WRIA planning unit has been initiated under RCW 90.82.060 and a lead agency has been designated, it shall notify the department and may apply to the department for funding assistance for conducting the planning. Funds shall be provided from and to the extent of appropriations made by the legislature to the department expressly for this purpose.

(2)(a) Each planning unit that has complied with subsection (1) of this section is eligible to receive watershed planning grants in the following amounts for three phases of watershed planning:

(i) Initiating governments may apply for an initial organizing grant of up to fifty thousand dollars for a single WRIA or up to seventy-five thousand dollars for a multi-WRIA management area in accordance with RCW 90.82.060(4);

(ii)(A) A planning unit may apply for up to two hundred thousand dollars for each WRIA in the management area for conducting watershed assessments in accordance with RCW 90.82.070, except that a planning unit that chooses to conduct a detailed assessment or studies under (a)(ii)(B) of this subsection or whose initiating governments choose or have chosen to include an instream flow or water quality component in accordance with RCW 90.82.080 or 90.82.090 may apply for up to one hundred thousand additional dollars for each instream flow and up to one hundred thousand additional dollars for each water quality component included for each WRIA to conduct an assessment on that optional component and for each WRIA in which the assessments or studies under (a)(ii)(B) of this subsection are conducted.

(B) A planning unit may elect to apply for up to one hundred thousand additional dollars to conduct a detailed assessment of multipurpose water storage opportunities or for studies of specific multipurpose storage projects which opportunities or projects are consistent with and support the other elements of the planning unit's watershed plan developed under this chapter; and

(iii) A planning unit may apply for up to two hundred fifty thousand dollars for each WRIA in the management area for developing a watershed plan and making recommendations for actions by local, state, and federal agencies, tribes, private property owners, private organizations, and individual citizens, including a recommended list of strategies and projects that would further the purpose of the plan in accordance with RCW 90.82.060 through 90.82.100.

(b) A planning unit may request a different amount for phase two or phase three of watershed planning than is specified in (a) of this subsection, provided that the total amount of funds awarded do not exceed the maximum amount the planning unit is eligible for under (a) of this subsection. The department shall approve such an alternative allocation of funds if the planning unit identifies how the proposed alternative will meet the goals of this chapter and provides a proposed timeline for the completion of planning. However, the up to one hundred thousand additional dollars in funding for instream flow and water quality components and for water storage assessments or studies that a planning unit may apply for under (a)(ii)(A) of this subsection may be used only for those instream flow, water quality, and water storage purposes.

(c) By December 1, 2001, or within one year of initiating phase one of watershed planning, whichever occurs later, the initiating governments for each planning unit must inform the department whether they intend to have the planning unit establish or amend instream flows as part of its planning process. If they elect to have the planning unit establish or amend instream flows, the planning unit is eligible to receive one hundred thousand dollars for that purpose in accordance with (a)(ii) of this subsection. If the initiating governments for a planning unit elect not to establish or amend instream flows as part of the unit's planning process, the department shall retain one hundred thousand dollars to carry out an assessment to support establishment of instream flows and to establish such flows in accordance with RCW 90.54.020(3)(a) and chapter 90.22 RCW. The department shall not use these funds to amend an existing instream flow unless requested to do so by the initiating governments for a planning unit.

(d) In administering funds appropriated for supplemental funding for optional plan components under (a)(ii) of this subsection, the department shall give priority in granting the available funds to proposals for setting or amending instream flows.

(3)(a) The department shall use the eligibility criteria in this subsection (3) instead of rules, policies, or guidelines when evaluating grant applications at each stage of the grants program.

(b) In reviewing grant applications under this subsection (3), the department shall evaluate whether:

(i) The planning unit meets all of the requirements of this chapter;

(ii) The application demonstrates a need for state planning funds to accomplish the objectives of the planning process; and

(iii) The application and supporting information evidences a readiness to proceed.

(c) In ranking grant applications submitted at each stage of the grants program, the department shall give preference to applications in the following order of priority:

(i) Applications from existing planning groups that have been in existence for at least one year;

(ii) Applications that address protection and enhancement of fish habitat in watersheds that have aquatic fish species listed or proposed to be listed as endangered or threatened under the federal endangered species act, 16 U.S.C. Sec. 1531 et seq. and for which there is evidence of an inability to supply adequate water for population and economic growth from:

(A) First, multi-WRIA planning; and

(B) Second, single WRIA planning;

(iii) Applications that address protection and enhancement of fish habitat in watersheds or for which there is evidence of an inability to supply adequate water for population and economic growth from:

(A) First, multi-WRIA planning; and

(B) Second, single WRIA planning.

(d) The department may not impose any local matching fund requirement as a condition for grant eligibility or as a preference for receiving a grant.

(4) The department may retain up to one percent of funds allocated under this section to defray administrative costs.

(5) Planning under this chapter should be completed as expeditiously as possible, with the focus being on local stakeholders cooperating to meet local needs.

(6) Funding provided under this section shall be considered a contractual obligation against the moneys appropriated for this purpose. [2001 c 237 § 2; 1998 c 247 § 1; 1997 c 442 § 105.]

NOTES:

Finding--Intent--2001 c 237: "The legislature is committed to meeting the needs of a growing population and a healthy economy statewide; to meeting the needs of fish and healthy watersheds statewide; and to advancing these two principles together, in increments over time.

The legislature finds that improved management of the state's water resources, clarifying the authorities, requirements, and timelines for establishing instream flows, providing timely decisions on water transfers, clarifying the authority of water conservancy boards, and enhancing the flexibility of our water management system to meet both environmental and economic goals are important steps to providing a better future for our state.

The need for these improvements is particularly urgent as we are faced with drought conditions. The failure to act now will only increase the potential negative effects on both the economy and the environment, including fisheries resources.

Deliberative action over several legislative sessions and interim periods between sessions will be required to address the long-term goal of improving the responsiveness of the state water code to meet the diverse water needs of the state's citizenry. It is the intent of the legislature to begin this work now by providing tools to enable the state to respond to imminent drought conditions and other immediate problems relating to water resources management. It is also the legislature's intent to lay the groundwork for future legislation for addressing the state's long-term water problems." [2001 c 237 § 1.]

Severability--2001 c 237: "If any provision of this act or its application to any person or circumstance is held invalid, the remainder of the act or the application of the provision to other persons or circumstances is not affected." [2001 c 237 § 33.]

Effective date--2001 c 237: "This act is necessary for the immediate preservation of the public peace, health, or safety, or support of the state government and its existing public institutions, and takes effect immediately [May 10, 2001]." [2001 c 237 § 34.]

Intent--2001 c 237: See note following RCW 90.66.065.

RCW 90.82.050 Limitations on liability. (1) This chapter shall not be construed as creating a new cause of action against the state or any county, city, town, water supply utility, conservation district, or planning unit.

(2) Notwithstanding RCW 4.92.090, 4.96.010, and 64.40.020, no claim for damages may be filed against the state or any county, city, town, water supply utility, tribal governments, conservation district, or planning unit that or member of a planning unit who participates in a WRIA planning unit for performing responsibilities under this chapter. [1997 c 442 § 106.]

RCW 90.82.060 Initiation of watershed planning--Scope of planning--Technical assistance from state agencies. (1) Planning conducted under this chapter must provide for a process to allow the local citizens within a WRIA or multi-WRIA area to join together in an effort to: (a) Assess the status of the water resources of their WRIA or multi-WRIA area; and (b) determine how best to manage the water resources of the WRIA or multi-WRIA area to balance the competing resource demands for that area within the parameters under RCW 90.82.120.

(2) Watershed planning under this chapter may be initiated for a WRIA only with the concurrence of: (a) All counties within the WRIA; (b) the largest city or town within the WRIA unless the WRIA does not contain a city or town; and (c) the water supply utility obtaining the largest quantity of water from the WRIA or, for a WRIA with lands within the Columbia Basin project, the water supply utility obtaining from the Columbia Basin project the largest quantity of water for the WRIA. To apply for a grant for organizing the planning unit as provided for under RCW 90.82.040(2)(a), these entities shall designate the entity that will serve as the lead agency for the planning effort and indicate how the planning unit will be staffed.

(3) Watershed planning under this chapter may be initiated for a multi-WRIA area only with the concurrence of: (a) All counties within the multi-WRIA area; (b) the largest city or town in each WRIA unless the WRIA does not contain a city or town; and (c) the water supply utility obtaining the largest quantity of water in each WRIA.

(4) If entities in subsection (2) or (3) of this section decide jointly and unanimously to proceed, they shall invite all tribes with reservation lands within the management area.

(5) The entities in subsection (2) or (3) of this section, including the tribes if they affirmatively accept the invitation, constitute the initiating governments for the purposes of this section.

(6) The organizing grant shall be used to organize the planning unit and to determine the scope of the planning to be conducted. In determining the scope of the planning activities, consideration shall be given to all existing plans and related planning activities. The scope of planning must include water quantity elements as provided in RCW 90.82.070, and may include

water quality elements as contained in RCW 90.82.090, habitat elements as contained in RCW 90.82.100, and instream flow elements as contained in RCW 90.82.080. The initiating governments shall work with state government, other local governments within the management area, and affected tribal governments, in developing a planning process. The initiating governments may hold public meetings as deemed necessary to develop a proposed scope of work and a proposed composition of the planning unit. In developing a proposed composition of the planning unit, the initiating governments shall provide for representation of a wide range of water resource interests.

(7) Each state agency with regulatory or other interests in the WRIA or multi-WRIA area to be planned shall assist the local citizens in the planning effort to the greatest extent practicable, recognizing any fiscal limitations. In providing such technical assistance and to facilitate representation on the planning unit, state agencies may organize and agree upon their representation on the planning unit. Such technical assistance must only be at the request of and to the extent desired by the planning unit conducting such planning. The number of state agency representatives on the planning unit shall be determined by the initiating governments in consultation with the governor's office.

(8) As used in this section, "lead agency" means the entity that coordinates staff support of its own or of other local governments and receives grants for developing a watershed plan. [2001 c 229 § 1; 1998 c 247 § 2.]

RCW 90.82.070 Water quantity component. Watershed planning under this chapter shall address water quantity in the management area by undertaking an assessment of water supply and use in the management area and developing strategies for future use.

(1) The assessment shall include:

(a) An estimate of the surface and ground water present in the management area;

(b) An estimate of the surface and ground water available in the management area, taking into account seasonal and other variations;

(c) An estimate of the water in the management area represented by claims in the water rights claims registry, water use permits, certificated rights, existing minimum instream flow rules, federally reserved rights, and any other rights to water;

(d) An estimate of the surface and ground water actually being used in the management area;

(e) An estimate of the water needed in the future for use in the management area;

(f) An identification of the location of areas where aquifers are known to recharge surface bodies of water and areas known to provide for the recharge of aquifers from the surface; and

(g) An estimate of the surface and ground water available for further appropriation, taking into account the minimum instream flows adopted by rule or to be adopted by rule under this chapter for streams in the management area including the data necessary to evaluate necessary flows for fish.

(2) Strategies for increasing water supplies in the management area, which may include, but are not limited to, increasing water supplies through water conservation, water reuse, the use of reclaimed water, voluntary water transfers, aquifer recharge and recovery, additional water allocations, or additional water storage and water storage enhancements. The objective of these strategies is to supply water in sufficient quantities to satisfy the minimum instream flows for fish and to provide water for future out-of-stream uses for water identified in subsection (1)(e) and (g) of this section and to ensure that adequate water supplies are available for agriculture, energy production, and population and economic growth under the requirements of the state's growth management act, chapter 36.70A RCW. These strategies, in and of themselves, shall not be

construed to confer new water rights. The watershed plan must address the strategies required under this subsection.

(3) The assessment may include the identification of potential site locations for water storage projects. The potential site locations may be for either large or small projects and cover the full range of possible alternatives. The possible alternatives include off-channel storage, underground storage, the enlargement or enhancement of existing storage, and on-channel storage. [2001 2nd sp.s. c 19 § 2; 1998 c 247 § 3.]

NOTES:

Intent--2001 2nd sp.s. c 19: "The legislature recognizes the potential for additional water storage as a solution to the water supply needs of the state. Last year the legislature created a task force to examine the role of increased water storage in providing water supplies to meet the needs of fish, population growth, and economic development, and to enhance the protection of people's lives and their property and the protection of aquatic habitat through flood control facilities. One solution discussed by the task force to address the state's water supply problem is to store water when there is excess runoff and stream flow, and deliver or release it during the low flow period when it is needed. The task force discussed the need for assessments of potential site locations for water storage projects. The legislature intends this act to assist in obtaining the assessments relating to water storage." [2001 2nd sp.s. c 19 § 1.]

RCW 90.82.080 Instream flow component--Rules. (1)(a) If the initiating governments choose, by majority vote, to include an instream flow component, it shall be accomplished in the following manner:

(i) If minimum instream flows have already been adopted by rule for a stream within the management area, unless the members of the local governments and tribes on the planning unit by a recorded unanimous vote request the department to modify those flows, the minimum instream flows shall not be modified under this chapter. If the members of local governments and tribes request the planning unit to modify instream flows and unanimous approval of the decision to modify such flow is not achieved, then the instream flows shall not be modified under this section;

(ii) If minimum stream flows have not been adopted by rule for a stream within the management area, setting the minimum instream flows shall be a collaborative effort between the department and members of the planning unit. The department must attempt to achieve consensus and approval among the members of the planning unit regarding the minimum flows to be adopted by the department. Approval is achieved if all government members and tribes that have been invited and accepted on the planning unit present for a recorded vote unanimously vote to support the proposed minimum instream flows, and all nongovernmental members of the planning unit present for the recorded vote, by a majority, vote to support the proposed minimum instream flows.

(b) The department shall undertake rule making to adopt flows under (a) of this subsection. The department may adopt the rules either by the regular rules adoption process provided in chapter 34.05 RCW, the expedited rules adoption process as set forth in *RCW 34.05.230, or through a rules adoption process that uses public hearings and notice provided by the county legislative authority to the greatest extent possible. Such rules do not constitute significant legislative rules as defined in RCW 34.05.328, and do not require the preparation of small business economic impact statements.

(c) If approval is not achieved within four years of the date the planning unit first receives funds from the department for conducting watershed assessments under RCW 90.82.040, the

department may promptly initiate rule making under chapter 34.05 RCW to establish flows for those streams and shall have two additional years to establish the instream flows for those streams for which approval is not achieved.

(2)(a) Notwithstanding RCW 90.03.345, minimum instream flows set under this section for rivers or streams that do not have existing minimum instream flow levels set by rule of the department shall have a priority date of two years after funding is first received from the department under RCW 90.82.040, unless determined otherwise by a unanimous vote of the members of the planning unit but in no instance may it be later than the effective date of the rule adopting such flow.

(b) Any increase to an existing minimum instream flow set by rule of the department shall have a priority date of two years after funding is first received for planning in the WRIA or multi-WRIA area from the department under RCW 90.82.040 and the priority date of the portion of the minimum instream flow previously established by rule shall retain its priority date as established under RCW 90.03.345.

(c) Any existing minimum instream flow set by rule of the department that is reduced shall retain its original date of priority as established by RCW 90.03.345 for the revised amount of the minimum instream flow level.

(3) Before setting minimum instream flows under this section, the department shall engage in government-to-government consultation with affected tribes in the management area regarding the setting of such flows.

(4) Nothing in this chapter either: (a) Affects the department's authority to establish flow requirements or other conditions under RCW 90.48.260 or the federal clean water act (33 U.S.C. Sec. 1251 et seq.) for the licensing or relicensing of a hydroelectric power project under the federal power act (16 U.S.C. Sec. 791 et seq.); or (b) affects or impairs existing instream flow requirements and other conditions in a current license for a hydroelectric power project licensed under the federal power act.

(5) If the planning unit is unable to obtain unanimity under subsection (1) of this section, the department may adopt rules setting such flows. [1998 c 247 § 4.]

NOTES:

***Reviser's note:** RCW 34.05.230 was amended by 2001 c 25 § 1, deleting the text that refers to expedited rules adoption. For expedited rules adoption, see RCW 34.05.353.

RCW 90.82.085 Instream flows--Assessing and setting or amending. By October 1, 2001, the department of ecology shall complete a final nonproject environmental impact statement that evaluates stream flows to meet the alternative goals of maintaining, preserving, or enhancing instream resources and the technically defensible methodologies for determining these stream flows. Planning units and state agencies assessing and setting or amending instream flows must, as a minimum, consider the goals and methodologies addressed in the nonproject environmental impact statement. A planning unit or state agency may assess, set, or amend instream flows in a manner that varies from the final nonproject environmental impact statement if consistent with applicable instream flow laws. [2001 c 237 § 3.]

NOTES:

Finding--Intent--Severability--Effective date--2001 c 237: See notes following RCW 90.82.040.

Intent--2001 c 237: See note following RCW 90.66.065.

RCW 90.82.090 Water quality component. If the initiating governments choose to include a water quality component, the watershed plan shall include the following elements:

(1) An examination based on existing studies conducted by federal, state, and local agencies of the degree to which legally established water quality standards are being met in the management area;

(2) An examination based on existing studies conducted by federal, state, and local agencies of the causes of water quality violations in the management area, including an examination of information regarding pollutants, point and nonpoint sources of pollution, and pollution-carrying capacities of water bodies in the management area. The analysis shall take into account seasonal stream flow or level variations, natural events, and pollution from natural sources that occurs independent of human activities;

(3) An examination of the legally established characteristic uses of each of the nonmarine bodies of water in the management area;

(4) An examination of any total maximum daily load established for nonmarine bodies of water in the management area, unless a total maximum daily load process has begun in the management area as of the date the watershed planning process is initiated under RCW 90.82.060;

(5) An examination of existing data related to the impact of fresh water on marine water quality;

(6) A recommended approach for implementing the total maximum daily load established for achieving compliance with water quality standards for the nonmarine bodies of water in the management area, unless a total maximum daily load process has begun in the management area as of the date the watershed planning process is initiated under RCW 90.82.060; and

(7) Recommended means of monitoring by appropriate government agencies whether actions taken to implement the approach to bring about improvements in water quality are sufficient to achieve compliance with water quality standards.

This chapter does not obligate the state to undertake analysis or to develop strategies required under the federal clean water act (33 U.S.C. Sec. 1251 et seq.). This chapter does not authorize any planning unit, lead agency, or local government to adopt water quality standards or total maximum daily loads under the federal clean water act. [1998 c 247 § 5.]

RCW 90.82.100 Habitat component. If the initiating governments choose to include a habitat component, the watershed plan shall be coordinated or developed to protect or enhance fish habitat in the management area. Such planning must rely on existing laws, rules, or ordinances created for the purpose of protecting, restoring, or enhancing fish habitat, including the shoreline management act, chapter 90.58 RCW, the growth management act, chapter 36.70A RCW, and the forest practices act, chapter 76.09 RCW. Planning established under this section shall be integrated with strategies developed under other processes to respond to potential and actual listings of salmon and other fish species as being threatened or endangered under the federal endangered species act, 16 U.S.C. Sec. 1531 et seq. Where habitat restoration activities are being developed under chapter 246, Laws of 1998, such activities shall be relied on as the primary nonregulatory habitat component for fish habitat under this chapter. [1998 c 247 § 6.]

RCW 90.82.110 Identification of projects and activities. The planning unit shall review historical data such as fish runs, weather patterns, land use patterns, seasonal flows, and geographic characteristics of the management area, and also review the planning, projects, and activities that have already been completed regarding natural resource management or enhancement in the management area and the products or status of those that have been initiated but not completed for such management in the management area, and incorporate their products as appropriate so as not to duplicate the work already performed or underway.

The planning group is encouraged to identify projects and activities that are likely to serve both short-term and long-term management goals and that warrant immediate financial assistance from the state, federal, or local government. If there are multiple projects, the planning group shall give consideration to ranking projects that have the greatest benefit and schedule those projects that should be implemented first. [1998 c 247 § 7.]

RCW 90.82.120 Plan parameters. (1) Watershed planning developed and approved under this chapter shall not contain provisions that: (a) Are in conflict with existing state statutes, federal laws, or tribal treaty rights; (b) impair or diminish in any manner an existing water right evidenced by a claim filed in the water rights claims registry established under chapter 90.14 RCW or a water right certificate or permit; (c) require a modification in the basic operations of a federal reclamation project with a water right the priority date of which is before June 11, 1998, or alter in any manner whatsoever the quantity of water available under the water right for the reclamation project, whether the project has or has not been completed before June 11, 1998; (d) affect or interfere with an ongoing general adjudication of water rights; (e) modify or require the modification of any waste discharge permit issued under chapter 90.48 RCW; (f) modify or require the modification of activities or actions taken or intended to be taken under a habitat restoration work schedule developed under chapter 246, Laws of 1998; or (g) modify or require the modification of activities or actions taken to protect or enhance fish habitat if the activities or actions are: (i) Part of an approved habitat conservation plan and an incidental take permit, an incidental take statement, a management or recovery plan, or other cooperative or conservation agreement entered into with a federal or state fish and wildlife protection agency under its statutory authority for fish and wildlife protection that addresses the affected habitat; or (ii) part of a water quality program adopted by an irrigation district under chapter 87.03 RCW or a board of joint control under chapter 87.80 RCW. This subsection (1)(g) applies as long as the activities or actions continue to be taken in accordance with the plan, agreement, permit, or statement. Any assessment conducted under RCW 90.82.070, 90.82.090, or 90.82.100 shall take into consideration such activities and actions and those taken under the forest practices rules, including watershed analysis adopted under the forest practices act, chapter 76.09 RCW.

(2) Watershed planning developed and approved under this chapter shall not change existing local ordinances or existing state rules or permits, but may contain recommendations for changing such ordinances or rules.

(3) Notwithstanding any other provision of this chapter, watershed planning shall take into account forest practices rules under the forest practices act, chapter 76.09 RCW, and shall not create any obligations or restrictions on forest practices additional to or inconsistent with the forest practices act and its implementing rules, whether watershed planning is approved by the counties or the department. [1998 c 247 § 8.]

RCW 90.82.130 Plan approval--Public notice and hearing--Revisions. (1)(a) Upon completing its proposed watershed plan, the planning unit may approve the proposal by consensus of all of the members of the planning unit or by consensus among the members of the planning unit appointed to represent units of government and a majority vote of the nongovernmental members of the planning unit.

(b) If the proposal is approved by the planning unit, the unit shall submit the proposal to the counties with territory within the management area. If the planning unit has received funding beyond the initial organizing grant under RCW 90.82.040, such a proposal approved by the planning unit shall be submitted to the counties within four years of the date that funds beyond the initial funding are first drawn upon by the planning unit.

(c) If the watershed plan is not approved by the planning unit, the planning unit may submit the components of the plan for which agreement is achieved using the procedure under (a) of this subsection, or the planning unit may terminate the planning process.

(2)(a) The legislative authority of each of the counties with territory in the management area shall provide public notice of and conduct at least one public hearing on the proposed watershed plan submitted under this section. After the public hearings, the legislative authorities of these counties shall convene in joint session to consider the proposal. The counties may approve or reject the proposed watershed plan for the management area, but may not amend it. Approval of such a proposal shall be made by a majority vote of the members of each of the counties with territory in the management area.

(b) If a proposed watershed plan is not approved, it shall be returned to the planning unit with recommendations for revisions. Approval of such a revised proposal by the planning unit and the counties shall be made in the same manner provided for the original watershed plan. If approval of the revised plan is not achieved, the process shall terminate.

(3) The planning unit shall not add an element to its watershed plan that creates an obligation unless each of the governments to be obligated has at least one representative on the planning unit and the respective members appointed to represent those governments agree to adding the element that creates the obligation. A member's agreeing to add an element shall be evidenced by a recorded vote of all members of the planning unit in which the members record support for adding the element. If the watershed plan is approved under subsections (1) and (2) of this section and the plan creates obligations: (a) For agencies of state government, the agencies shall adopt by rule the obligations of both state and county governments and rules implementing the state obligations, the obligations on state agencies are binding upon adoption of the obligations into rule, and the agencies shall take other actions to fulfill their obligations as soon as possible; or (b) for counties, the obligations are binding on the counties and the counties shall adopt any necessary implementing ordinances and take other actions to fulfill their obligations as soon as possible.

(4) As used in this section, "obligation" means any action required as a result of this chapter that imposes upon a tribal government, county government, or state government, either: A fiscal impact; a redeployment of resources; or a change of existing policy. [2001 c 237 § 4; 1998 c 247 § 9.]

NOTES:

Finding--Intent--Severability--Effective date--2001 c 237: See notes following RCW 90.82.040.

Intent--2001 c 237: See note following RCW 90.66.065.

RCW 90.82.140 Use of monitoring recommendations in RCW 77.85.210. In conducting assessments and other studies that include monitoring components or recommendations, the department and planning units shall implement the monitoring recommendations developed under RCW 77.85.210. [2001 c 298 § 2.]

NOTES:

Finding--Intent--2001 c 298: See note following RCW 77.85.210.

RCW 90.82.900 Part headings not law--1997 c 442. As used in this act, part headings constitute no part of the law. [1997 c 442 § 803.]

RCW 90.82.901 Severability--1997 c 442. If any provision of this act or its application to any person or circumstance is held invalid, the remainder of the act or the application of the provision to other persons or circumstances is not affected. [1997 c 442 § 805.]

RCW 90.82.902 Captions not law--1998 c 247. As used in this act, captions constitute no part of the law. [1998 c 247 § 15.]

Appendix B
Examples of Municipal Water Conservation Measures

Appendix B
Examples of Municipal Water Conservation Measures

Sample Universe of Water Conservation Measures [1]

End Use	Conservation Measure	Customer Class
Shower	Low-flow showerheads (2.75 GPM)	SFR, MFR, COM
	Ultra-low flow showerheads (1.9 GPM)	SFR, MFR, COM
	Shower flow restrictors	SFR, MFR, COM
Faucets	Low-flow faucets	SFR, MFR, COM, IND, GVT
	Low-flow faucet aerators	SFR, MFR, COM, IND, GVT
Toilets	Gravity-flow tank-type ULFT	SFR, MFR, COM
	Pressurized tank type ULFT	SFR, MFR, COM
	<1 GPF ULFT	SFR, MFR, COM
Toilet Retrofit	Displacement bags	SFR, MFR, COM
	Displacement bottles	SFR, MFR, COM
	Displacement dams	SFR, MFR, COM
	Dual-flush adapters	SFR, MFR, COM
	Fill cycle regulators	SFR, MFR, COM
	Early closure flappers	SFR, MFR, COM
Leaks -Faucet	Faucet washers	SFR, MFR, COM
Leaks -Toilet	Flapper valves	SFR, MFR, COM
	Fill valves	SFR, MFR, COM
	Leak detection tablets	SFR, MFR, COM
Washers	Lower volume vertical axis	SFR, MFR
	Horizontal axis machines	SFR, MFR
Dishwashers	Lower volume dishwashers	SFR, MFR
Residential Misc.	Replace self-regenerating water softeners	SFR, MFR
	Point-of-use water heaters	SFR, MFR
	Individual dwelling unit sub-meters	MFR
	Separate irrigation sub-meters	MFR, COM,IND, IRR, GVT
	Metering all accounts	SFR, MFR, COM, IND, IRR, GVT
	Water pressure regulator	SFR, MFR

[1] Source: American Water Works Association (AWWA), undated, *Integrated Resource Planning, A Balanced Approach to Water Resources Decision Making.*

End Use	Conservation Measure	Customer Class
Residential Outdoor	Hose control nozzles	SFR, MFR
	Garden hose timers	SFR, MFR
	Drip irrigation system	SFR, MFR
	Bubbler/soaker irrigation system	SFR, MFR
	Automatic sprinkler system	SFR, MFR
	Soil sensors	SFR, MFR
	Rain sensors	SFR, MFR
	Water efficient plant material	SFR, MFR
	Xeriscaping	SFR, MFR
	Turf replacement/reduction	SFR, MFR
	Irrigation scheduling	SFR, MFR
	Soil preparation/mulching	SFR, MFR
	Graywater systems	SFR, MFR
	Rainwater collector/cistern	SFR, MFR
	Swimming pool covers	SFR, MFR
Commercial Toilets	Commercial ULFT	COM, IND, GVT
	ULFT valve replacement	COM, IND
	Ultra-low flush urinals	COM, IND, GVT
	Ultra-low flush urinal valve replacement	COM, IND, GVT
	Infra-red activated flushing	COM, IND, GVT
Commercial Faucets	Pressure closing	COM, IND, GVT
	Spring loaded	COM, IND, GVT
	Infra-red activated	COM, IND, GVT
	Ultrasonic activated	COM, IND, GVT
	Foot operated	COM, IND, GVT
Commercial Misc.	Point-of-use water heaters	COM, IND, GVT
	Recirculating hot water systems	COM, IND, GVT
	Swimming pool covers	COM, GVT
	Centralized regeneration water softeners	COM, GVT
	Meter-controlled flushing water softeners	COM, GVT
Commercial Washers	Efficient machines (laundromat capacity)	COM, GVT
	Recycling machines	COM, GVT
	Batch washers	COM, GVT
	Tunnel washers	COM, GVT
	Rinse water reclaim systems	COM, GVT
	Ozonated washing machines	COM, GVT
Car Washes	Low volume car washes	COM, GVT
	Recirculating/counter-current car washes	COM, GVT
Air-Cooled Machinery	Air conditioners (HVAC)	COM, GVT
	Chillers	COM, GVT
	Pumps	COM, GVT
	Compressors	COM, GVT
	Ice-makers	COM, GVT
	Cold-water drinking fountains	COM, GVT
Air-Cooled Machinery	Medical equipment	GVT

End Use	Conservation Measure	Customer Class
(continued)	(sterilizers, X-ray equipment, etc.)	
	Laboratory equipment (pumps, deionizers, etc.)	GVT
Food Handling	Water-efficient dishwashers	COM, GVT
	Recirculating dishwashers	COM, GVT
	Chemical sanitizer dishwashers	COM, GVT
	Conveyor dishwashers	COM, GVT
	Ultrasound dishwashers	COM, GVT
	Dishwasher water reuse systems	COM, GVT
	Warming tables with dry heat	COM, GVT
	Garbage disposers using recycled water	COM, GVT
	Off-site garbage disposal	COM, GVT
Heat Exchangers/ Boilers	Closed loop	COM, GVT
	Steam condensate return systems	COM, IND, GVT
Cooling Towers Modifications	Drift eliminators	COM, IND, GVT
	Connections to alternative makeup sources	
	Conductivity meters for blow-down control	
	Flow meters on make-up and blow-down valves	
	Fixed ppm discharge minimum requirements	
	Eliminate/replace all single-pass cooling systems	
Cooling Towers	Process changes to reach higher cooling tower of concentration (from standard 1-2 to 6 or more)	
	-Ozonation systems	
	-Acid treatment systems	
	-Ion exchange systems	
	-Lime softening systems	
	-Sidestream filtration systems	
	-Magnetic attraction systems	
	-Electrostatic field generator systems	
Evaporative Cooler	Reroute and reuse blow down	COM, IND, GVT
	Thermostat controllers	COM, IND, GVT
Solenoid and other automatic valves for water flow control	Timer controls/delay switches	IND
	Mechanical motion-sensors	
	Electronic motion sensors	
	Float valves on make-up reservoirs	
	Conductivity probes	
	Temperature probes	
	Master off-hour control valves	

End Use	Conservation Measure	Customer Class
Industrial washers and rinsers (least efficient -continuous running bath rinsers)	Quick-dump rinsers with timers or conductivity probes Counter current washers and rinsers Spray rinsing systems Air knives Drag-out elimination stages Return drains	IND
High pressure/low volume spray nozzles	Conveyor systems Washers and rinsers Warmers Chillers	IND
Closed system/batch dump chillers/warmers		IND
On-site water reclamation/treatment systems	Ultrafiltration Activated carbon filtration Ion exchange processes Reverse osmosis Vapor compression evaporation Deionized water reclaim loops	IND
Graywater: use reclaimed/treated process water in a lower quality process or non-process use(includes required dual-plumbing modifications)	Cooling tower makeup systems Landscape irrigation systems Dust control systems Cleaning systems Once-through cooling systems Toilet flushing systems Fume/ gas scrubbing systems Quenching systems	IND
Waste stream separation to facilitate process water reclamation	Separation of sanitary water stream and process water stream Segregation of toxic from non-toxic constituent streams Sewer bypass connections between point of discharge and point of reuse Facilities for temporary storage of process water	IND
Custom industrial process operations (varies by industry)	Lower volume soap and water conveyor belt lubrication systems Lower volume bottle washer and rinser systems Dyebath recirculation systems High-pressure/ low-volume cleaning equipment	IND

End Use	Conservation Measure	Customer Class
Building Outdoor	Sub-meter for irrigation	COM, IND, GVT
Large Landscape	Drip irrigation systems	COM, IRR, IND, GVT
	Bubbler/Soaker irrigation systems	COM, IRR, IND, GVT
	High-efficiency sprinkler/system	COM, IRR, IND, GVT
	Timers	COM, IRR, IND, GVT
	Soil sensors	COM, IRR, IND, GVT
	Rain sensors	COM, IRR, IND, GVT
	Computer stations	COM, IRR, IND, GVT
	Weather station hook-ups	IRR, GVT
	Water efficient plant material	COM, IRR, IND, GVT
	Xeriscaping	COM, IRR, IND, GVT
	Turf replacement/reduction	COM, IRR, IND, GVT
	Irrigation scheduling	COM, IRR, IND, GVT
	Soil preparation/mulching	COM, IRR, IND, GVT
	All weather artificial recreation surfaces	IRR, GVT
	Recirculating water features	COM, IRR, IND, GVT
	Graywater systems	COM, IRR, IND, GVT
	Storage reservoir and pumping systems to capture and use stormwater runoff	IRR, GVT
Distribution System	Leak detection and repair service/training	UTL
	Periodic valve servicing and adjustment	UTL
	Periodic equipment servicing	UTL
Agricultural	Miscellaneous	

ABBREVIATIONS

SFR: Single Family Residences
COM: Commercial
GVT: Government and Exempt Institutions
UTL: Utility
GPM: gallon per minute
GPF: gallon per flush
HVAC: Heating, ventilation, and air-conditioning systems
MFR: Multi Family Residences
IND: Industrial
IRR: Irrigators/Large landscapers
ULFT: Ultra low flow toilet
ppm: parts per million

Appendix C

Key Issues Regarding Municipal Water Conservation Options

Appendix C
Key Issues Regarding Municipal Water Conservation Options

(Note: the following material has been excerpted from the document: 2001 Central Puget Sound Water Supply Outlook, produced by the Central Puget Sound Water Supplier Forum. The excerpted material was developed by a Conservation Work Group comprised of representatives from municipal water utilities, county governments, environmental organizations, Washington State Department of Ecology, Washington State Department of Health, and industry groups representing the building industry, landscaping industry, landscape irrigation industry, and car wash industry. While the discussion was developed with reference to King, Pierce and Snohomish Counties, much of the material presented is also relevant to other regions of the State.)

Key Issues for Conservation Options

Preparation of the Outlook included developing the conservation options described [previously] in this section [of the Outlook document]. However, a number of key issues remain to be addressed to enhance conservation achievements in the region. Many of these issues concern fundamental aspects of implementing conservation on a local and regional basis. As a stimulus to further discussion of regional aspects of water conservation in King, Pierce, and Snohomish Counties, this section provides a brief summary of those key issues.

Political Acceptance of Conservation Objectives and Approaches

Many of the conservation scenarios described in this [Outlook] document would require substantial increases in funding, staffing, and consumer participation throughout the region, compared with current levels. However, current conservation levels vary throughout the region. Some of the measures envisioned would also require changes in land-use practices, building codes, and local ordinances. If these types of changes are to occur, broad political acceptance is necessary. The importance of political acceptance often begins with the public, and carries through to the local and state elected officials who have the authority to commit public resources to conservation activities. Even in areas where water is delivered by special-purpose districts, the elected officials of local cities and counties need to be involved in changes that would result in increased conservation.

Elected officials receive many signals from the electorate, and these signals are sometimes conflicting. For example, the public may express objectives of: (1)

improving the environment, (2) reducing the role of government in private decisions, and (3) keeping rates and taxes low. To achieve broad political acceptance, any effort to expand conservation activities must somehow balance these multiple mandates.

Political acceptance requires recognition of the roles water conservation can play in achieving important objectives such as restoring and maintaining fish runs in the region, and meeting the municipal water supply needs of a growing population. It also requires an understanding of the limitations of conservation for achieving these goals. In addition, both the public and elected officials need clear and accurate information regarding the costs of conservation activities, effects on utility rates, and possible effects on lifestyles. Political acceptance also hinges on questions such as the balance between government requirements and individual choice, and the degree of control by local governments as opposed to state agencies or regional organizations. All of these issues are closely related to other topics discussed in this section, such as education and outreach, pricing and rate structures, and regional coordination/local control issues (see below).

Education and Outreach

Education and outreach play a vital role in any successful conservation program. Education is needed not only to inform the public, but also to ensure that elected officials, utility managers, and state regulators are well informed regarding both the opportunities and the challenges involving water conservation.

With regard to regional conservation activities pursuant to the scenarios discussed within this document, several aspects of education will be important. These include:

- Ensuring that elected officials (city council members, utility board members, etc.) across the region are well-informed regarding the linkages between conservation activities and broader public objectives such as fish restoration and provision of municipal water supply.
- Providing information to the public regarding how their uses of water affect environmental quality, and overcoming the perception some consumers may have that conservation is unnecessary because the Puget Sound region has a rainy climate.
- Improving consumer understanding of the economics of conservation in the short- and long-term, for both residential and non-residential consumers. This includes elements such as the relationship between water use and utility bills (water, sewer, and power), and understanding the full life-cycle cost savings associated with water-efficient appliances.
- Providing accurate and understandable information to residential and non-residential consumers regarding available conservation techniques.

- Improving information and training available to water utility management and staff regarding conservation techniques and "revenue-neutral" conservation rate structures, particularly at smaller utilities within the region that have not yet had extensive experience with conservation.
- Informing members of key industries such as development, construction, landscaping, irrigation, retail nurseries, home-improvement outlets, and others of the ways conservation can be effectively incorporated into their routine practices without compromising profitability.
- Increased attention to water resource issues in youth education programs.

Effects of Pricing and Rate Structures on Consumer Choices

Water rates play an important role in influencing consumer behavior with respect to conservation. Numerous studies have demonstrated that both the overall price of water and the rate structure affect consumer choices with respect to day-to-day water uses in residential and non-residential settings, as well as choices of water-using appliances, landscaping, etc. Combining a well-designed rate structure with effective conservation programs and outreach information can yield synergies that increase the effectiveness of each element.

Generally, consumers are expected to use less water if the price is higher, particular with regard to "discretionary" uses such as outdoor watering (although this may not apply to some more affluent customers). Rate structures can be designed to emphasize price signals at higher rates of consumption. For example, inclined block rates charge more per gallon at higher levels of consumption. Seasonal rates typically charge more per gallon during the summer months than during the winter months, above a certain base quantity designed to provide for minimum domestic needs.

Billing practices are also important in this regard. It is common in the region for water utilities to issue bills every other month, and water bills may be combined with bills for sewer and other services. Because of these practices, customers may find it difficult to recognize the impact of water consumption on their monthly bill, and therefore may not act to reduce water consumption during the peak season when reductions are most valuable. A change in billing practices would require a corresponding change in meter-reading practices. Estimates of costs for such changes in meter-reading and billing practices have not been developed for the Outlook.

Rate levels and rate structures vary widely, depending on the circumstances of particular utilities in the region. Many utilities have already adopted rate structures designed to send appropriate price signals to customers and thereby encourage conservation. For other utilities, changes in rate structures, metering,

and billing practices would be needed to achieve the participation rates envisioned in the conservation scenarios presented in the Outlook.

The conservation scenarios described incorporate participation rates that are high relative to participation achieved in many other areas that have promoted conservation. These participation rates are unlikely to be achievable unless rate structures are implemented throughout the regions that provide strong financial incentives to conserve. Such rate structures will be effective over time only if accompanied by a sustained information program that ensures consumers remain aware of the linkages between water consumption and their utility bills.

Further information on this topic can be found in the Washington State Department of Health document entitled "Conservation Oriented Rates for Public Water Systems in Washington, Report to the Legislature" (1995).

Methods for Evaluating Economic Aspects of Conservation

It is important that decision makers have sound information regarding the costs and benefits of conservation. It is equally important that consumers receive accurate price signals regarding the value of water. Both of these depend on effective use of methods for economic evaluation. As would be expected in a region with diverse sources and delivery systems for municipal water supply, the techniques and assumptions used in economic evaluation vary somewhat among the many diverse utilities in the region.

Important aspects of economic evaluation include:

- Whether cost-benefit analysis by a given water system should consider only the costs and benefits experienced by customers of that system, or whether broader costs and benefits ("externalities") should be considered, and given the same weight. If broader issues are considered, a related issue concerns whether the customers of that system should bear all of the financial costs, or whether broader sources of funding should be provided.
- Whether and how water rates should incorporate externalities, such as effects on instream flows or regional aquifer levels, to ensure consumers receive appropriate price signals on the value of water.
- How non-financial costs and benefits should be addressed in cost-benefit analysis (e.g., impacts on environmental quality, impacts on water system reliability, etc.).
- Consideration of collateral benefits such as reduced capital and operating costs associated with wastewater treatment.

- Use of marginal cost pricing compared with average cost pricing, in ratemaking.[1]
- Equity issues, due to differential effects of pricing on low-income customers, compared with high-income customers.
- Potential variation in decision making from community to community, due to differing community values.
- Appropriate expectations for the level of detail in economic analysis by small utilities with modest staffing and financial resources, compared with larger utilities that have more extensive resources and experience.

Some utilities in the region already incorporate some or all of these concepts in their decision-making and rate practices. Others do not. Together, these issues have important effects on the use of conservation compared with other approaches to municipal water supply, and on the degree of consistency in conservation programs throughout the region.

Balancing Regional Coordination with Local Control

One of the challenges involved in implementing any of the conservation scenarios discussed in the Outlook is the issue of balancing regional coordination with local control. Regional coordination offers potential advantages of consistency, predictability, and cost savings. Local control can offer the advantage of tailoring programs to meet specific needs and community values.

At this time, this balance is based on use of statewide guidelines for conservation planning, coupled with local decision making on the degree and type of conservation activities to be implemented to achieve local objectives. The statewide guidelines call for measurement of water uses, specific techniques for demand forecasting, documentation of objectives, and evaluation of specific categories of conservation activities using a cost-effectiveness test. The guidelines have increasing levels of expectations for small, medium, and large utilities, respectively. Each utility has the responsibility to apply the guidelines to its specific circumstances, and determine the appropriate conservation program, subject to state review. More specific review and implementation is required of utilities applying for increased water rights.

If a higher degree of coordination were desired for the region, there are several ways this could be achieved. Available techniques could include:

[1] Marginal cost pricing reflects the cost of each additional increment of water sold. The cost of producing and delivering water to meet peak demands (e.g., in the summer months) is usually higher than the cost during non-peak periods. Therefore, marginal cost pricing generally results in higher rates for water consumed during peak periods, compared with water consumed during non-peak periods.

- Formation of a new institution such as a water conservation commission to plan, fund and/or implement conservation activities within the region (or delegation of this role to one or more existing entities),
- Increased regulatory requirements from the state Department of Health and/or Ecology,
- New funding for conservation from a regional or statewide source, tied to specific, regionally-consistent performance requirements,
- Improved advisory and informational linkages among utilities, stakeholders, and state agencies, building on existing organizations such as the Water Conservation Coalition of Puget Sound, the Central Puget Sound Water Suppliers' Forum and its Conservation Workgroup, or
- Binding agreements among utilities region-wide, or within various subregions,
- Some combination of the approaches above.

State Water Law

Many observers have noted that uncertainty clouds various aspects of State water law in Washington. This uncertainty can affect efforts to conserve water, and can make it difficult to find common ground among differing perspectives. In particular, the "use it or lose it" principle regarding water rights appears to many to present a disincentive to conserving water.

Issues related to water law have many dimensions and involve interests across the state. While opinions on how to resolve this uncertainty are diverse, there is little doubt that it affects the decisions of water suppliers in important ways related to conservation. Additional discussion of these issues is included in Section 12.

State Role in Promoting Conservation

State agencies have a different role in the water field, in comparison with local governments, water utilities, and private citizens. The Washington State Department of Health regulates water systems. One of the tools used by the Department of Health is the review and approval of water system plans, including conservation plans. The Department of Ecology administers water rights, and has the responsibility to balance uses of water with environmental protection. Once the Department of Health's new data system is in place, and data is being collected, the database will help provide a basis for evaluating different utilities' conservation programs. It should be noted that existing rules require utilities to implement "cost-effective" conservation measures, but that the term "cost-effective" is not defined, and thus difficult for utilities to implement.

Involvement of the departments of Health and/or Ecology could potentially contribute to achievement of the conservation scenarios described in this document.

Both agencies can contribute to education and outreach efforts involving citizens, utilities, and elected officials, if they have the resources to do so. Both agencies have a place in discussions on regional coordination and objectives. The Department of Ecology would be directly involved in any clarification of state water law, as discussed above.

Coordination Between Land-Use Management and Water-Resource Management

The state Growth Management Act (GMA) establishes policy and procedural linkages between land development and provision of utility services. However, experience with GMA suggests that these linkages have not yet successfully integrated land-use management and water-resource management. This linkage is relevant to water conservation, because it can be far more cost-effective to incorporate water-saving design in new construction than to retrofit existing structures and developed sites. These considerations apply to building codes, landscaping ordinances, water metering (e.g., irrigation water meters and sub-metering of multifamily housing), decisions on source of supply from existing utilities as opposed to new water systems, definition of critical areas under GMA, and many other issues. Under the right circumstances, alterations in land-use practices that reduce water consumption may also reduce overall public costs, if they reduce the need for extending roads and other utility services.

These issues are complex and involve the adopted plans and procedures of many jurisdictions. Clearly, however, improved coordination between local land-use authorities, permitting departments and water utilities could substantially improve prospects for achieving conservation savings across the region.

Appendix D

Selected Information from the Wastewater Reclamation and Reuse Standards

Appendix D
Selected Information from the Wastewater Reclamation and Reuse Standards (1)

Treatment Classes of Reclaimed Water

1. **"Class A Reclaimed Water"** means reclaimed water that, at a minimum, is at all times *an oxidized, coagulated, filtered, disinfected* wastewater. The wastewater shall be considered adequately disinfected if the median number of total coliform organisms in the wastewater after disinfection does not exceed 2.2 per 100 milliliters, as determined from the bacteriological results of the last 7 days for which analyses have been completed, and the number of total coliform organisms does not exceed 23 per 100 milliliters in any sample.

"Oxidized Wastewater" means wastewater in which organic matter has been stabilized such that the biochemical oxygen demand (BOD) does not exceed 30 mg/L and the total suspended solids (TSS) do not exceed 30 mg/L, is nonputrescible, and contains dissolved oxygen.

"Coagulated Wastewater" means an oxidized wastewater in which colloidal and finely divided suspended matter have been destabilized and agglomerated prior to filtration by the addition of chemicals or by an equally effective method.

"Filtered Wastewater" means an oxidized, coagulated wastewater which has been passed through natural undisturbed soils or filter media, such as sand or anthracite, so that the turbidity as determined by an approved laboratory method does not exceed an average operating turbidity of 2 Nephelometric turbidity units (NTU), determined monthly, and does not exceed 5 NTU at any time.

"Disinfected Wastewater" means wastewater in which pathogenic organisms have been destroyed by chemical, physical or biological means.

2. **"Class B Reclaimed Water"** means reclaimed water that, at a minimum, is at all times an oxidized, disinfected wastewater. The wastewater shall be considered adequately disinfected if the median number of total coliform organisms in the wastewater after disinfection does not exceed 2.2 per 100 milliliters, as determined from the bacteriological results of the last 7 days for which analyses have been completed, and the number of total coliform organisms does not exceed 23 per 100 milliliters in any sample.

[1] Wastewater Reclamation and Reuse Standards, 1997, Washington State Departments of Health and Ecology.

3. **"Class C Reclaimed Water"** means reclaimed water that, at a minimum, is at all times an oxidized, disinfected wastewater. The wastewater shall be considered adequately disinfected if the median number of total coliform organisms in the wastewater after disinfection does not exceed 23 per 100 milliliters, as determined from the bacteriological results of the last 7 days for which analyses have been completed, and the number of total coliform organisms does not exceed 240 per 100 milliliters in any sample.

4. **"Class D Reclaimed Water"** means reclaimed water that, at a minimum, is at all times an oxidized, disinfected wastewater. The wastewater shall be considered adequately disinfected if the median number of total coliform organisms in the wastewater after disinfection does not exceed 240 per 100 milliliters, as determined from the bacteriological results of the last 7 days for which analyses have been completed.

Treatment and Quality Requirements for Reclaimed Water Use in Non-Potable Applications

Treatment and Quality Requirements for Reclaimed Water Use

	Type of Reclaimed Water Allowed			
Use	**Class A**	**Class B**	**Class C**	**Class D**
Irrigation of Nonfood Crops				
Trees and Fodder, Fiber, and Seed Crops	YES	YES	YES	YES
Sod, Ornamental Plants for Commercial Use, and Pasture to Which Milking Cows or Goats Have Access	YES	YES	YES	NO
Irrigation of Food Crops				
Spray Irrigation				
All Food Crops	YES	NO	NO	NO
Food Crops Which Undergo Physical or Chemical Processing Sufficient to Destroy All Pathogenic Agents	YES	YES	YES	YES
Surface Irrigation				
Food Crops Where There is No Reclaimed Water Contact With Edible Portion of Crop	YES	YES	NO	NO
Root Crops	YES	NO	NO	NO
Orchards and Vineyards	YES	YES	YES	YES
Food Crops Which Undergo Physical or Chemical Processing Sufficient to Destroy All Pathogenic Agents	YES	YES	YES	YES
Landscape Irrigation				
Restricted Access Areas (e.g., cemeteries and freeway landscapes)	YES	YES	YES	NO
Open Access Areas (e.g., Golf Courses, Parks, Playgrounds, Schoolyards, and Residential Landscapes	YES	NO	NO	NO
Impoundments				
Landscape Impoundments	YES	YES	YES	NO
Restricted Recreational Impoundments	YES	YES	NO	NO
Nonrestricted Recreational Impoundments	YES	NO	NO	NO
Fish Hatchery Basins	YES	YES	NO	NO
Decorative Fountains	YES	NO	NO	NO
Flushing of Sanitary Sewers	YES	YES	YES	YES
Street Cleaning				
Street Sweeping, Brush Dampening	YES	YES	YES	NO
Street Washing, Spray	YES	NO	NO	NO
Washing of Corporation Yards, Lots, and Sidewalks	YES	YES	NO	NO
Dust Control (Dampening Unpaved Roads and Other Surfaces	YES	YES	YES	NO
Dampening of Soil for Compaction (at Construction Sites, Landfills, etc.)	YES	YES	YES	NO
Water Jetting for Consolidation of				

Treatment and Quality Requirements for Reclaimed Water Use

	Type of Reclaimed Water Allowed			
Use	**Class A**	**Class B**	**Class C**	**Class D**
Backfill Around Pipelines				
Pipelines for Reclaimed Water, Sewage, Storm Drainage, and Gas, and Conduits for Electricity	YES	YES	YES	NO
Fire Fighting and Protection				
Dumping from Aircraft	YES	YES	YES	NO
Hydrants or Sprinkler Systems in Buildings	YES	NO	NO	NO
Toilet and Urinal Flushing	YES	NO	NO	NO
Ship Ballast	YES	YES	YES	NO
Washing Aggregate and Making Concrete	YES	YES	YES	NO
Industrial Boiler Feed	YES	YES	YES	NO
Industrial Cooling				
Aerosols or Other Mist not Created	YES	YES	YES	NO
Aerosols or Other Mist Created (e.g., Use in Cooling Towers, Forced Air Evaporation, or Spraying)	YES	NO	NO	NO
Industrials Process				
Without Exposure of Workers	YES	YES	YES	NO
With Exposure of Workers	YES	NO	NO	NO
Discharge to Wetlands				
Discharge to Constructed Beneficial Use Wetland	YES	YES	NO	NO
Discharge to Natural Wetlands	YES	YES	YES	YES
Human Non-Contact Restricted Access	YES	YES	YES	NO
Fisheries or Human Non-Contact Recreation	YES	YES	NO	NO
Human Contact	YES	NO	NO	NO